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Southern Lands

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Southern Lands

By

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and

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GINN AND COMPANY · TORONTO

Foreword for Teachers

A new text is usually received by teachers with mixed feelings. In the case of a new geography text, the first reaction is usually dismay at so much ground to be covered in one year. New geography texts contain more information about the countries than did the old-type text; but they also contain many more maps, pictures, graphs, diagrams, and exercises. These are as important as the written text. A visual memory is of the utmost importance in retaining geographical situations, and these maps, pictures, and graphs should be used constantly and systematically. Few teachers can hope to cover the whole book with every pupil. How can the necessary choice of materials be made? To answer this question we must recall the reasons why we teach geography.

Like all the social studies, geography is intended to develop right social attitudes towards our fellow man, no matter in what far corner of the earth he may be found. In this text, pupils are being led away from Canada, their home, to meet people of various races, colours, nationalities, and outlooks. It is the tremendous responsibility of the teacher of geography to lead pupils to a sympathetic understanding of people of other lands, their way of life, their accomplishments, and their problems.

The general plan which the authors have kept before them is to present in one text all the southern lands. This choice of material has been made because many similarities are discernible in all these lands: similarities of climate, vegetation, crops, and, as a result, similarities of occupation. In addition, most of these lands are politically and economically youthful: their peoples are struggling towards a better way of life.

If all the text is not for all the pupils, a choice is implied. Thorough teaching of a limited part of each continent is better than a superficial glance at everything. The teacher, after covering the foundation teaching of each continent or large unit, may concentrate on certain countries or smaller units, and merely skim, or even omit, the rest. In large classes, group work is possible; each group may choose one topic for intensive study and report on it to the class. This method of procedure means that each child knows a few units well, and others in much less detail. All, however, should be led to the discovery of important geographical principles applicable wherever conditions are similar.

There are certain skills which should be developed, too. The most important of these is the use of maps. By the end of the year, pupils should be able to read with confidence maps of many kinds. Graphs are a new tool for pupils at this level, and their meaning and use must also be taught.

The pictures in the text have been chosen with care, and each deserves careful study. Statistics covering areas, population, etc. are provided as a means of comparison. The exercises are many and varied: only the best pupils can cover them all. As can easily be seen, they are intended as aids in teaching more often than for testing.

As a final plea, the authors beg teachers to leave the text with the pupils wherever possible. It may surprise some teachers, but pupils are known to read "even a geography text" for pleasure, when they are given the opportunity. By this means all but the weakest pupils will, by the end of the year, have read the whole text at least once.

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Southern Lands

DRAWN BY RICHARD EDES HARRISON 1944 OBLIQUE CONIC CONFORMAL PROJECTION COURTESY OF AMERICAN GEOGRAPHICAL SOCIETY

over 10,000′
3,000′—10,000′
1,000′—3,000′
0′—1,000′

NORTH POLE
ARCTIC OCEAN
PACIFIC OCEAN
ATLANTIC OCEAN
Gulf of Mexico
Caribbean Sea
Bering Strait
ALEUTIAN IS.
Nome
Yukon R.
ALASKA
Fairbanks
Gulf of Alaska
Juneau
Prince Rupert
VANCOUVER ISLAND
Vancouver
Seattle
Portland
Columbia R.
San Francisco
Los Angeles
Salt Lake City
Colorado R.
Denver
ROCKY MOUNTAINS
Mackenzie R.
VICTORIA I.
Great Bear Lake
Great Slave Lake
Peace R.
Athabaska R.
Lake Athabaska
Edmonton
Calgary
Saskatchewan R.
Regina
Missouri R.
Winnipeg
Minneapolis
Chicago
St. Louis
Ohio R.
Mississippi R.
Rio Grande
Houston
Galveston
New Orleans
Atlanta
Jacksonville
Miami
BAHAMA ISLANDS
Havana
WEST INDIES
MEXICO
Mexico City
Veracruz
CENTRAL AMERICA
Panama Canal
SOUTH AMERICA
UNITED STATES
CANADA
Churchill
Hudson Bay
Hudson Strait
Baffin Bay
BAFFIN ISLAND
GREENLAND
ICELAND
Lake Winnipeg
Great Lakes
Toronto
Detroit
Ottawa
Montreal
Quebec
St. Lawrence R.
APPALACHIAN MTS.
Boston
New York
Washington
Halifax
CAPE BRETON I.
Cabot Str.
NEWFOUNDLAND
St. Johns
Str. of Belle Isle
BERMUDA ISLANDS
180°
170°
160°
150°
140°
130°
120°
110°
100°
90°
80°
70°
60°
50°
40°
30°
20°
10°

1 · The Caribbean



Courtesy of Canadian National Railways

A Canadian ship taking on a cargo at a West Indian port.

THE WEST INDIES

A TRIP TO THE WEST INDIES

Ho, for the Spanish Main! Have you read stories of pirates? of Drake and Hawkins, Captain Kidd and Captain Morgan? Exciting tales have been told of bold buccaneers lying in wait for Spanish treasure ships, of wild sea fights on the Spanish Main, of buried treasure and high adventure. Many of these stories are fancy, but some of them are true. There really were such pirates, and the Spanish Main was a real sea. What is more, we can board a ship in Canada today, and in a few days' time we, too, can be sailing the Spanish Main!

The Spanish Main of olden times is called the Caribbean Sea today. No pirates lurk there now. Passenger liners, pleasure cruisers, and freighters carrying the cargoes of trade ply its bright blue waters in peace. Its islands, the West Indies, once the scene of so many adventures, now offer their beauties for the enjoyment of tourists. And how beautiful those islands are! They have brilliant sunshine and warmth, when Canada wears a blanket of snow; white beaches, up which great breakers roll; brilliant flowers; trees we have never seen before. Around all is the sea, of such varied colours that it must be seen to be believed.

Although many Canadians visit the West Indies during summer, most prefer to go in winter, and that is what we shall do. We shall have to sail from Halifax, as the



Duncan Keith Corinaldi

A ship from Newfoundland unloading codfish at Kingston, Jamaica.

St. Lawrence is frozen over during the winter months.

Our ship · When we reach Halifax, we find at the dock the ship on which we are to sail. Our ship, like all those sailing to the West Indies, carries cargo as well as passengers, since a brisk trade is carried on between Canada and these islands. In fact, the West Indies are among Canada's oldest customers. As long ago as when Canada was New France, Talon, the Great Intendant, encouraged the colonists to build ships to carry lumber and dried and salted fish to the West Indies, to be traded for sugar, rum, and molasses. Since then many schooners have left our eastern harbours with cargoes of fish, returning home with salt, sugar, and tropical fruits.

The voyage · At last we are off, with all the clatter and excitement which form a part of any ship's sailing. Skies are gray, fog patches rest here and there on the water, and the air is chill. We are glad to go to our cabins.

A day passes. Walking the deck in the chilly breeze and watching the dull gray waves is depressing. We spend most of our time indoors, where we read, play games, listen to the radio, or take part in a singsong. When, on the second morning, the rising gong wakens us, we realize that the air has become much warmer. We hurry on deck. Blue skies and a soft breeze greet us. What can this mean?

The Gulf Stream · The cause of this change is the Gulf Stream. There are currents flowing in great circles in several of the oceans of the world. One covers the North Atlantic. Look at the map on page 5. As the current of water in the North Atlantic sweeps westward along the equator, part of it flows into the Gulf of Mexico. Once there, it is difficult for the water to escape, and so it heaps up until the level of the water in the Gulf is seven inches higher than in the open sea. In this shallow, enclosed Gulf the water

These barrels on the wharf in Quebec harbour contain molasses from Barbados in the West Indies.

National Film Board Photograph





The Caribbean Sea and the West Indies.

becomes warmer than in the open ocean. When it finally escapes between Florida and Cuba, it comes forth as a deep, narrow stream of warm water known as the Gulf Stream. Its temperature here is 81 degrees. The stream turns north around Florida and follows the continental shelf as far as Cape Hatteras. From there, winds from the west carry it across the North Atlantic. It is now very wide and shallow, but it is still warm. This part of the stream is called the North Atlantic Drift, or the West Wind Drift.

THE BERMUDAS

About four days after leaving Halifax, our ship brings us in sight of the British islands of Bermuda. These islands are not part of the West Indies, but our ship will call here. A small boat comes out to meet us, bringing the pilot who will guide us through the difficult passage into Hamilton harbour. We hold our breath as we watch him climb up the swaying rope ladder to the deck.

Bermuda, or rather, the Bermudas, since

The Gulf Stream.



120° 110° 100° 90°

30°

20°

10°

EQUATOR

110° 100° 90°

UNITED STATES

NORTH AMERICA

Mississippi R.

New Orleans

Gulf of California

CALIFORNIA

Chihuahua

Rio Grande

Nuevo Laredo

Laredo

Monterrey

SIERRA MADRE CENTRAL PLATEAU

PAN-AMERICAN HIGHWAY

GULF OF MEXICO

Key West

Havana

San Blas

Tampico

Guadalajara

Progreso

Mérida

Gulf of Campeche

Manzanillo

Paricutín

Mexico City

IXTACIHUATL

POPOCATEPETL

Puebla

ORIZABA

Orizaba

Véracruz

YUCATÁN

SIERRA MADRE DEL SUR

Acapulco

Salina Cruz

Belize

BRITISH HONDURAS

SIERRA MADRE

HONDURAS

Guatemala

Tegucigalpa

San Salvador

SALVADOR

NICARAGUA

Managua

CENTRAL AMERICA

COSTA RIC

San José

PACIFIC OCEAN

GALAPAGOS IS.
(ECUADOR)

MEXICO AND THE CARIBBEAN REGION

Statute miles

0 100 200 300 400 500 600

over 10,000′
3,000′-10,000′
1,000′-3,000′
0′-1,000′

★ Capitals of countries

80° 70° 60° 50°

30° 20° 10°

BERMUDA (BR.)

ATLANTIC OCEAN

Florida Strait

BAHAMA ISLANDS (BRITISH)

Miami

Nassau

TROPIC OF CANCER

CUBA

WEST INDIES

GREATER ANTILLES

Santiago de Cuba

HAITI

DOMINICAN REPUBLIC

HISPANIOLA

Port-au-Prince

Ciudad Trujillo

San Juan

PUERTO RICO (U.S.)

VIRGIN IS. (U.S.)

BRITISH VIRGIN IS.

JAMAICA (BR.)

Kingston

LEEWARD ISLANDS

GUADELOUPE (FR.)

LESSER ANTILLES

MARTINIQUE (FR.)

BARBADOS (BR.)

ST. VINCENT (BR.)

WINDWARD ISLANDS

CARIBBEAN SEA

ARUBA

CURAÇAO (NETH.)

BONAIRE

Port of Spain

TRINIDAD (BR.)

Barranquilla

Caracas

PANAMA CANAL

Panamá

Colón

PANAMERICAN HIGHWAY

Magdalena R.

VENEZUELA

Orinoco R.

Georgetown

Paramaribo

Cayenne

BRITISH GUIANA

SURINAM (NETH.)

FRENCH GUIANA

Bogotá

COLOMBIA

Buenaventura

SOUTH AMERICA

EQUATOR

BRAZIL

Quito

ECUADOR

ANDES MTS.

Amazon R.



Bermuda News Bureau

An air view of Hamilton, Bermuda, showing the harbour and the white buildings gleaming in the sun.

there is said to be an island for every day of the year, are made of coral limestone. They are built on the summit of a mountain which rises 15,000 feet from the ocean floor, but not quite high enough to reach the surface of the water. The islands which rest on the top of this sunken mountain are the work of countless millions of tiny coral polyps. Through the ages they have taken lime from the ocean water, and, little by little, have built up the limestone rock which now forms the islands.

Into Hamilton harbour · As we sail slowly along the channel into Hamilton harbour, we have time to examine the low islands, so tiny in the midst of the great Atlantic. We see the dark green juniper trees, the white or pastel-coloured houses under the blue, blue sky. But what are those strange white patches which we see here and there on the green slopes? They are *catchment basins*—slabs of cement, sloping towards a reservoir to catch and store up precious rain water. Every house roof too is expected to catch its share of rain because coral islands usually lack water. Rain water dissolves coral limestone and *seeps*, or trickles, deep underground instead of remaining on the surface as streams or ponds.

Hamilton · Soon we are ashore and are able to get a closer view. People of many nationalities crowd the wharves. Horse-drawn carriages, small automobiles, and bicycles pass to and fro in the narrow streets. On the slope above Front Street we can see the beautiful cathedral and the Parliament Building with its red-tiled roof. Bermuda's parliament is, next to Great Britain's, the oldest in the Commonwealth.

What the people do · Bermuda is a favourite tourist resort for Canadians. Many go there by ship, as we have done; many others fly there by plane. Caring for tourists is the principal business of the Bermudians, but some of them do other work, of course. Everywhere are little shops with beautiful goods from many lands. Small farms supply some of the food needed on the islands. Flowers are grown, particularly Easter lilies, which are flown to Canada and the United States. Fishing, and servicing fishing trips for tourists, give work to other islanders.

Trade with Canada · Bermuda, we are told, carries on a valuable trade with Canada. From our ports go canned meat, fish, fruit, and milk, also flour, cotton goods, clothing, drugs, paint, and paper. Cows and hogs are even sent by plane from Canada to Bermuda, and Canadian fodder feeds them when they arrive.

THE BAHAMAS

Our next stop after leaving Bermuda is at Nassau in the Bahamas, east and south of Florida. Find these islands on the map on pages 6–7. These are the first of the West Indies that we shall visit. It was on one of the Bahamas that Columbus first landed in the New World in 1492. The islands are now British.

The Bahama Islands are in many ways like the Bermudas. They are formed of coral, have fine beaches, and their people, too, earn a living largely by helping tourists enjoy the natural beauties and the warm climate of the islands.

There is more land to be used for agriculture in the Bahamas than in the Bermudas. Tomatoes are an important crop, and many are sold in Canada during the winter. Bananas, citrus fruits, and *henequen* are also grown. From the henequen plant we get *sisal hemp*, which is made into the binder twine used so widely in harvesting in Canada and the United States.

Here, too, is excellent fishing, and diving for sponges was an important industry until disease attacked the sponges a few years ago.

JAMAICA

Our ship takes us on again, and this time we land at Kingston, the capital city of Jamaica. Jamaica, too, is a British island. It is a much larger island than any we have yet visited. It is not made of coral limestone,



Herbert Lanks, from Black Star

Digging asphalt from the pitch lake on the island of Trinidad.

but is the remains of a mountain range now sunk below the sea.

HOMEWARD BOUND

Across the Caribbean · From Jamaica we sail across the Caribbean to the British island of Trinidad, near the coast of South America.

A power dam near Kingston, Jamaica. What does this picture tell about the island?

Pan American World Airways System



This is our most distant port of call, and from here our ship starts on its homeward journey. We shall visit many islands on our way, some large and some small, some made of coral like the Bermudas and the Bahamas, others, like Jamaica, the tops of sunken mountains. On we sail, to the Windward Islands, the Leeward Islands, Puerto Rico, the Dominican Republic and Haiti, and finally Cuba, where we visit the sugar plantations and tobacco fields which produce the chief crops of this island. We return home delighted with the beauties of the West Indies and anxious to learn more about the islands.

MAP STUDIES · **1.** On the map on pages 6–7 trace the curving line of islands, beginning with Trinidad, opposite the delta of the Orinoco River in South America, and ending in Cuba. Find the names of the four largest islands of the chain. These are known as the Greater Antilles. The smaller islands, or Lesser Antilles, are divided into groups under different governments. Find the names of these groups. One of them is the Windward Islands. Near the coast of Venezuela in South America there are three other small islands. What are their names? Many of the West Indian islands are the tops of a mountain range that once linked South America to Central America. Can you suggest what may have happened to the mountain range?

Farmland in Puerto Rico. Notice how hilly the land is.

Pan American World Airways System



2. Many of the West Indies were discovered and settled by Spaniards. Hispaniola, discovered by Columbus, was the first settlement in the New World to have a governor. Later, as the great Spanish Empire crumbled, the islands were taken by other nations, chiefly Britain and France. Discuss in class the reasons why European nations wanted these far-away islands.

3. In your notebook list in two columns the names of the French and the British islands. The abbreviations *Fr.* and *Br.* under the names of the islands will help you. Find the three islands near the coast of Venezuela which belong to the Netherlands. Add them in a third column. Now find those islands belonging to the United States and place them in a fourth column. Two islands, the largest of all, are not yet in your lists. These are Cuba and Hispaniola. The United States took Cuba from the Spaniards in 1898, and helped to develop the island's resources. The Cubans now govern themselves. Hispaniola is divided into two republics. What are their names?

Look up in the index the names of all the islands we have described, to be sure that you can pronounce them properly.

4. Study again the map on pages 6–7. Are most of the islands of the West Indies high above the sea or low-lying? What difference is there in the surface of Jamaica and that of the Bahamas? Which is the most mountainous island of the West Indies? In what ways is the surface of Cuba like that of Puerto Rico? What differences do you notice?

PRODUCTS AND INDUSTRIES OF THE ISLANDS

Agriculture

A favourable climate · Look at the map on pages 6–7. Notice that the tropic of Cancer lies just north of the islands. This tells us that



How the winds blow across the earth.

in the West Indies the noonday sun is directly overhead twice during the year. Throughout the whole summer the sun at noon is high in the sky and the heat is great. At no time of the year is there cold weather or frost. This means that crops requiring year-round growth, such as bananas and sugar cane, will do well here.

Since the temperature is about the same all year, the difference in seasons is marked chiefly by the amount of rainfall. There is a rainy season in summer, and a fairly dry season in winter. The rainfall is not the same everywhere on the islands. Look at the diagram above, and find the *trade winds* which blow over the West Indies. The arrows drawn on the map show you that these winds blow from the northeast. As they rise to cross mountains they become cooled and drop some of their moisture as rain on the slopes facing the wind, usually called the *windward* slopes. Often the plains on the *leeward*, or sheltered, side of the mountains are quite dry. The mountainous islands receive more rainfall than low-lying islands. For this reason, there are forests on the windward slopes and plains, while grasslands are found in the shelter of the mountains and on the low-lying islands.

Products of the wet lands · The dense, wet forests produce woods valuable for furniture-making. Along the shore and where there is more room, we find coconut palms. When the land is cleared, bananas, pineapples, cacao, citrus fruits, and tobacco are grown.

Products of the dry lands · Tropical grasslands have many uses. They provide pastures for cattle, so that meat and milk can be supplied for food. Tall grasses, such as sugar cane, the chief cash crop of the islands; corn, an important food crop; and bamboo, used in making furniture and baskets, are three of the most common crops of the grasslands. Where it is still drier, henequen can be grown.



Annual rainfall of North America.



Population of North America.

Special crops · On several islands a special crop is grown which does not appear elsewhere. Thus we find ginger and vanilla in Jamaica; cashew nuts and cola nuts, used in making the various cola soft drinks, in the French West Indies; citron and sea island cotton (a very fine, long-fibred variety) in Puerto Rico. The bay tree is found on St. John, in the Virgin Islands, and arrowroot on St. Vincent, in the Windward Islands.

SOMETHING TO DO · Many of the crops of which you have just read are new to you. In encyclopedias or in other reference books, such as those listed on page 271, see what you can learn about these tropical crops. Divide the class into groups, each taking one crop. When you have prepared a good report, read it to the class.

Mining

Minerals are known to be present on many of the islands, but little mining is done. From Trinidad's pitch lake comes asphalt and oil. From Cuba, iron ore, chromite, copper, and manganese are shipped to the United States. Bauxite is mined in Jamaica for the great aluminum works at Kitimat in British Columbia. Trace on a map of North America the route ships carrying bauxite would travel between Jamaica and British Columbia. Several islands produce salt by evaporating sea water.

Manufacturing

A growing industry · Little manufacturing is done as yet, except on the larger islands, but it is now becoming more important. Cuba and Puerto Rico have the most important manufacturing industries, while in Trinidad and the Dominican Republic they are increasing rapidly.

Since sugar is the most important crop, hundreds of sugar mills or "centrals" produce not only sugar, but molasses, rum, and alco-

hol. Bay rum, a fragrant liquid made from alcohol and the leaves of the bay tree, is another manufactured product. It is used for perfume and toilet water.

In places where tobacco is grown, cigarettes and cigars are manufactured. Havana cigars are well known and can be bought in all parts of Canada.

In Aruba and Curaçao, two islands belonging to the Netherlands, and in Trinidad, oil refining gives work to many people.

Food products are canned or processed in many places, and various goods are manufactured for local use.



By Ewing Galloway, N. Y.

Pineapples and oranges are important products of the West Indies.

Tourist Industry

A tourist paradise · The West Indies have everything to attract tourists and build up a resort industry. Such an industry gives work to many islanders and will in time raise the standard of living. Each year more and more modern hotels and cabins are being built for the use of visitors.

THE PEOPLE OF THE ISLANDS

People from many lands · There is a mixture of many nationalities in the West Indies. We expect this because so many nations have controlled the islands. When Columbus discovered the West Indies he found there people whom he called "Indians." These Indians probably came originally from South America. Most of them were killed off in

The children enjoy playing along this irrigation canal in the Dominican Republic.

Caterpillar Tractor Co.



When this sugar cane is fully grown, it will tower high above the men's heads.

Hamilton Wright





Hamilton Wright

Why does this school in the West Indies have such wide eaves and small windows?

battle or by disease. Their Spanish conquerors were later conquered by other peoples from Europe, but some of their descendants remain, and in some of the islands —Cuba is one—Spanish is still the language of most of the people. In other islands there are people from Britain, and in still others, French. In the islands which belong to the Netherlands, Dutch settlers built houses exactly like those in their home country in Europe.

When sugar plantations were started, Africans were brought in to work on them as slaves. When slavery was done away with, many of the Africans refused to work in the cane fields, and other workers were brought in from India. More recently still, Americans from the United States have come in large numbers, particularly to Puerto Rico. People from one part of the world have married people from another, until today there is a remarkable mixture of peoples and languages in the islands.

TRANSPORTATION AND TRADE

Transportation and travel · As you already know, Canadian ships sail between Halifax and the West Indies in winter. In summer ships sail from Montreal to the British West Indies and the other islands. Ships also sail

West Indians in Canada sending Christmas greetings home by radio.

National Film Board Photograph



to the West Indies from various ports in the United States. A train ferry, such as the one that joins Prince Edward Island with New Brunswick, connects Cuba with southern Florida. Smaller boats, carrying both passengers and cargo, sail between the various islands, and fishing boats and pleasure boats are numerous.

All the larger islands, and some of the smaller ones, now have airports. Passengers, mail, and freight are going more and more by air. Regular passenger air service is now carried on between Canada and some of the larger centres on the islands.

Trade of the West Indies · As you have learned, the products of the West Indies are quite unlike those of northern lands. Then, too, manufacturing is not so highly developed as in Canada, the United States, and Europe. These conditions are very good for trade. Naturally, each island trades most with the country which governs it, or with which it has political ties. The British West Indies trade chiefly with Great Britain and Canada, though some trade is carried on between Canada and the other islands. Independent island states trade where they can. Cuba's trade is largely with the United States.

Usually, Canada imports from the West Indies sugar, molasses, fruits, coffee, cacao, coconuts, and spices. Certain islands send us special products. We get tomatoes from Jamaica and the Bahamas, sponges from the Bahamas and Cuba, arrowroot from Jamaica and the Leeward and Windward Islands, sisal hemp from Cuba and Haiti, ginger from Jamaica, cabinet woods from the Dominican Republic, asphalt and oil from Trinidad, and handicrafts from Haiti.

Our exports to the islands are foodstuffs,—chiefly wheat, flour, fish, canned and dried milk,—textiles and clothing, paints, drugs and soaps, lumber, automobiles and trucks, paper and newsprint.



British Information Services

Oil tanks and a modern hospital in Trinidad. See how the windows are shaded from the sun.

THINGS TO DO · **1.** In an encyclopedia or other reference books find out about sponges—how they grow, how the sponge fleets operate, and how sponges are prepared for sale.

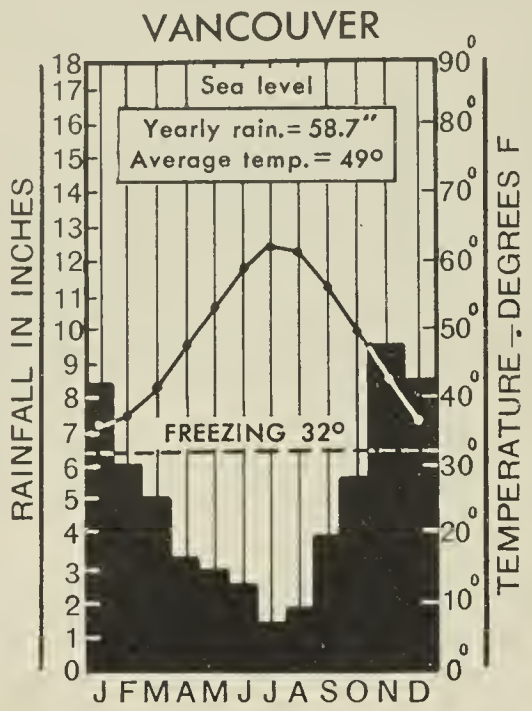
2. Bermuda has a remarkable aquarium, in which fish of many kinds, unknown to us, may be seen. Try to find pictures of tropical fish, such as angel fish, parrot fish, flying fish, groupers, etc. Also include pictures of tuna fish and barracudas, which are found around the Bahamas.

3. Locate the following cities by using the map on pages 6–7. List them and opposite each write the name of the island on which it is found: Port-au-Prince, Kingston, Havana, Ciudad-

Alumina, a white powder produced from bauxite in this plant in Jamaica, is sent to Canada to be made into the metal, aluminum.

Courtesy of The Aluminum Company of Canada





The diagram above is a *climate graph*. Such graphs show temperature and rainfall throughout the year at any given place.

Across the bottom of the graph you will see letters—J, F, M, etc. These stand for the months of the year. Thus, the centre of the graph shows summer conditions north of the equator, and the ends show winter conditions.

To the right of the graph you find the word *temperature*, and some figures. These show temperature in degrees Fahrenheit. At the bottom we see 0° for zero, above this 10°, 20°, and so on. Place a ruler across your graph from, say, 40°. An average temperature of 40° for any month in the year will be shown on that line. The broken line from 32° is important, since water freezes at 32°. Wherever there is an average monthly temperature of 32°, it is certain that frosts will kill growing crops. Each average monthly temperature is shown on the graph by a dot. For Vancouver, we see that the average temperature in January is 35°, and in February 38°. What is the average temperature for July?

To the left of the graph you find the word *rainfall*. The figures on this side show in inches the total rainfall for one month. We see that in January Vancouver has over 8 inches of rain, while in February it has 6 inches. This graph also shows that rain falls during every month of the year, and that much more rain falls in the winter season than in summer.

There are other graphs on pages 90, 274, and 275. Whenever you read the graph for any place, compare it with the graph for the place nearest to your home.

Trujillo, Port-of-Spain, San Juan, Santiago de Cuba.

4. Earthquakes and *hurricanes*, which are violent wind storms, have often done great damage in the West Indies. Ask your teacher to help you to find out more about these disasters.

5. Divide your class into groups, one for each of the following islands, and find out all you can about the island chosen. Decide first what you should know, and how best you can report to the rest of the class on what you have learned. Here are a few interesting facts to help you:

Trinidad has the most cosmopolitan population of any island (use your dictionary to discover the meaning of *cosmopolitan*).

Cuba exports more sugar than any other country in the world.

Puerto Rico is the most advanced in the development of electric power.

Haiti is the only Negro nation in the Americas. Its people speak French.

The Dominican Republic at the present time is progressing more rapidly than any other state in the islands. It already has a television network.

Barbados is the most densely populated of the West Indies. It was first settled by English people nearly 350 years ago.

Jamaica has some of the most beautiful scenery of any of the islands.

Aruba and *Curaçao* have two of the largest oil refineries in the world.

Martinique has a volcano—Mont Pelée—which in 1902 destroyed the whole town of St. Pierre.

6. Begin making a scrapbook of the lands you study this year. Paste in the scrapbook pictures, maps, and short articles about the different countries. Start with Bermuda and the West Indies. Write a line or two about each picture.



Pan American World Airways System

An ancient aqueduct still brings water to this Mexican town.

OUR NEAREST LATIN-AMERICAN NEIGHBOUR

LATIN-AMERICAN COUNTRIES

Latin America · The name Latin America is given to those countries of the Americas where Spanish or Portuguese is the official language. Both these languages come from Latin, the language of the ancient Romans, who at one time ruled over much of Europe. For that reason the people who speak Spanish or Portuguese are often called the Latin peoples.

The lands of Latin America are all those in the Americas lying south of the United States—Mexico, Central America, the West Indies, and South America. The Latin-American countries are alike in many ways, but they have a way of living quite unlike that in Canada or the United States. One of the chief reasons for this is that they were settled by people from Spain and Portugal.

Mexico is the most northerly of the Latin-American countries. It lies just south of the United States. As you can see on the map on page 2, Mexico is not nearly so large as Canada. It has an area of 758,550 square miles. How does that compare with the area of your own province? Which Canadian provinces have a combined area about equal to that of Mexico? It may surprise you to find that there are more people living in Mexico than in the whole of Canada. Mexico has a population of about 25,000,000, as compared to our 14,000,000.

Another thing about Mexico that sometimes surprises Canadians is its age. The native people had an old and highly devel-



A map of our trip through Mexico.

oped civilization before the white man came. It was very much more advanced than the Indian civilization found by the French and English in Canada. There were Spanish settlements in Mexico before Champlain founded his settlements in Canada. Mexico had a university more than fifty years before Quebec was founded!

TO MEXICO CITY BY CAR

Mexico is a most interesting country to visit, because of its many relics of bygone days, because of its magnificent scenery, and because of the variety of living conditions in different parts of the country. Let us visit Mexico and see it for ourselves.

There are several ways of travelling there. We can travel by plane, by boat, by train, or, best of all, by car, since that will give us a chance to see more than we could if we were to travel from place to place in Mexico by plane. Once in the country, we can follow the famous Pan American Highway. The name tells us that it is to link together all the American nations.

Crossing the border · If we enter Mexico from Laredo, in Texas, we cross a bridge over the brown waters of the Rio Grande and find ourselves in Nuevo Laredo on the Mexican side of the border. Here government officials inspect our passports and other papers, our car, and our baggage. When our papers have been stamped, we are free to continue our long drive of nearly 800 miles to Mexico City.

The road to Monterrey · As we want to have time to explore the city of Monterrey before nightfall, we make an early start. The air is fresh, although it is rapidly growing hot. The road lies straight ahead of us. We notice that all the road signs are in Spanish.

In a field at the right a dozen or more goats are grazing. Ahead of us is something that looks like a moving mound followed by a small boy. As we draw nearer, it turns out to be a *burro*, or donkey, weighed down by an enormous load of firewood. Later on we see more of these sturdy animals carrying bundles of dried cornstalks.

After a time we pass through a little village of *adobe* (sun-baked clay) houses. A man is sitting in the sun on a doorstep. He has bare feet, and wears white, pyjama-like trousers rolled up almost to his knees, a faded blue shirt open at the neck, and a big wide-brimmed *sombrero*, or hat, which is tilted forward to shade his eyes.

Hills and trees · After driving for a little over an hour, we find that the road begins to rise. By noon we are among rolling hills covered with small plants and scrubby bushes. Soon trees are to be seen, some of them a good size. The road rises gradually to Mamulique Pass, where, our map tells us, we are about 2,000 feet above sea level.

Forty miles further on we reach Monterrey. As we are to stop all night here, we shall have time to study our maps and to look about us. The mountains which we notice to the south and west are the Eastern Sierra Madre, a continuation of the Rocky Mountains.

A busy, modern city · Monterrey, a city about the size of Winnipeg, has more hurry and bustle than most Mexican cities. Iron and steel industries are important here, since Monterrey is a railway centre about midway between deposits of iron and coal. There are also textile mills, and plants where furniture, shoes, and tiles are manufactured. As we drove along the highway, we noticed the red-tiled roofs on many of the white, pale-pink, or pale-blue houses along the way. These tiles were made in Monterrey.

On again · Early the next morning we drive on again under the blue Mexican sky. Around us on all sides are the mountains. In the valleys and in cleared patches on the mountainsides are fields of corn, which is the chief food crop of the Mexican peasant.

Before noon we begin to notice a difference in the crops being grown. The tall stalks which we see in the fields now are those of sugar cane instead of corn. There are cane-mills beside some of the houses, and we see the cane being ground by burro power. From time to time we pass ox-carts loaded with sugar cane.

Crossing a tropic · About 190 miles from Monterrey we cross the tropic of Cancer, an imaginary line $23\frac{1}{2}$ degrees North Latitude. On the map on page 60 find the tropic of Capricorn. The noonday sun shines straight down somewhere between these two lines on every day in the year. Only between these two lines is the sun ever directly overhead. At noon on June 21st it shines straight down on the tropic of Cancer. At this time it is, of course, very hot in Mexico. In all Mexico south of the tropic of Cancer, the noon sun shines straight down on two days during the year, once before June 21st and once after this date. In what part of the sky do we, in Canada, see the sun at noon? If you lived in Mexico City, which is south of the tropic of Cancer, in what direction would you look to see the sun at noon (*a*) on June 21st? (*b*) in December?

Changing scenery · As we drive on we begin to see trees that are full size, not mere shrubs. The mountains to the west of us rise higher and higher. From time to time we meet trucks loaded with bales of cotton going north to the mills in Monterrey. The drivers seem to enjoy honking their horns to greet us.

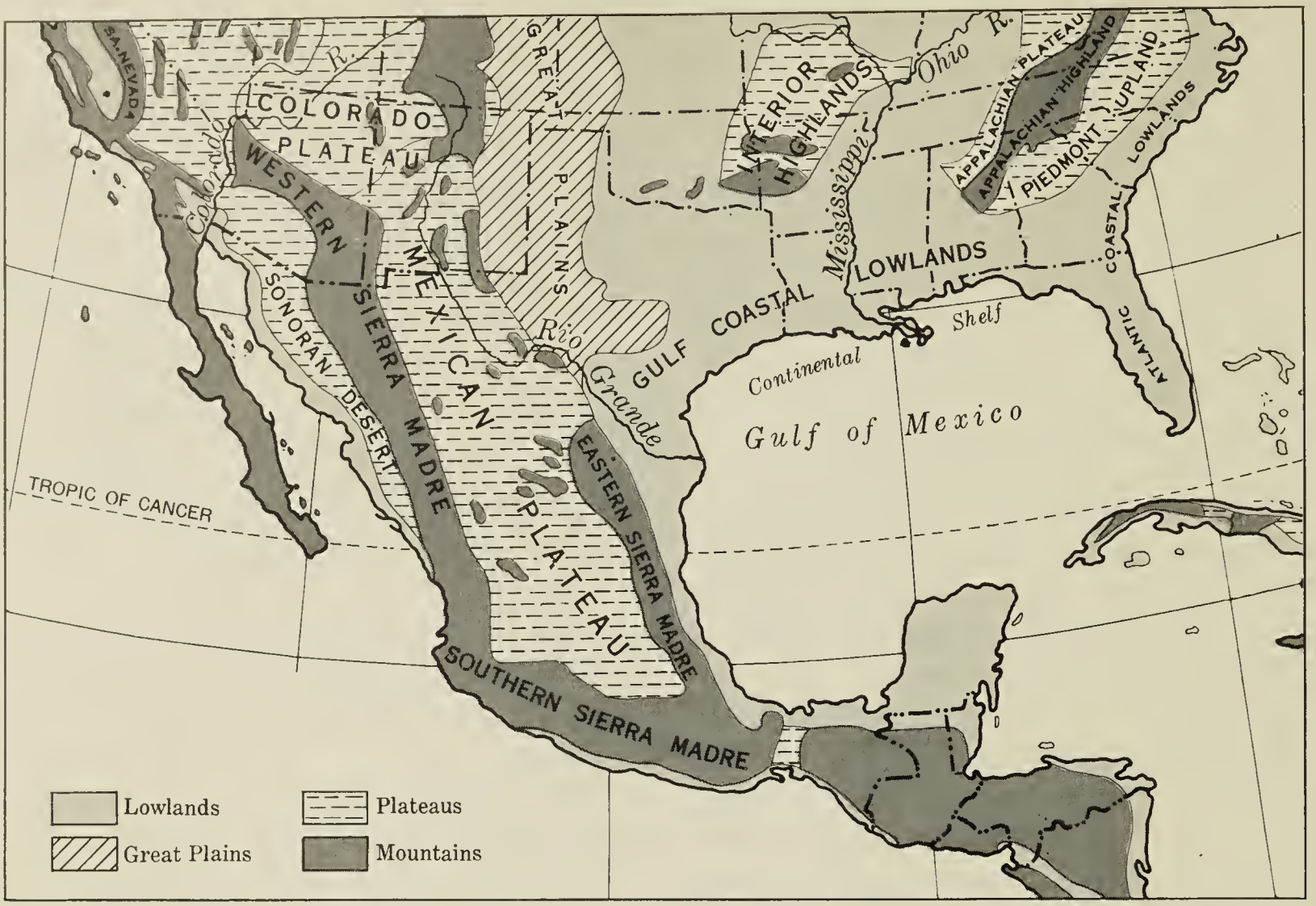
Here and there are citrus groves, the fruit of which the Mexicans call *limón*. We also notice more and more brooks and streams, telling us that we are coming into a land of heavier rainfall. Late in the afternoon someone calls out, "Oh, look, look! There are some banana plants!" Not long afterwards someone spots a parrot in a tree, and we realize that we are indeed now within the tropics.

It suddenly becomes dark as we near the little town of Tamazunchale (called "Thomas 'n' Charlie" by most tourists), where we are to stop for the night. We feel as if we were in a different world. The windows of the little inn where we are staying are screened

Burros and ox-carts form much of the traffic in the country towns along our route.

Henricks Hodge, from Three Lions





A landform map of Mexico.

to keep out the malarial mosquitoes, but through the windows we can see fireflies dancing among the trees.

A highland road · The next morning we begin to climb. Up, up, up the road leads us, curving around the mountains. Often on one side there is a sharp drop to a ravine below, while on the other side the mountain peaks soar above us. Our map shows 4,000 feet above sea level, 6,000 feet, finally 8,300 feet, before we cross the highest point on the road and begin to glide down onto the Central Plateau. There we shall find Mexico City, 7,200 feet, nearly one and a half miles, above sea level. No settlement in Canada, even in the Rockies, is so high.

By this time we are so high up that the rich tropical growth has been left behind. There are scrub oaks, pines, and juniper trees instead of palms and banana plants. The clear, crisp air is welcome after the heat of the morning. The road becomes wider and more crowded, and just before nightfall we reach the outskirts of Mexico City, which its people simply call Mexico.

Mexico's capital · Mexico City, the capital and largest city of the republic, is the centre of the life and industry of the southern part of the Central Plateau. Turn to page 274 to compare its population with that of Montreal. If you locate Mexico City on a map, you will sometimes find it shown in a separate area marked *D.F.* These letters stand for *Distrito Federal*, which in English means Federal District. Washington in the United States and Canberra in Australia are also capitals located in federal districts. Is Ottawa in a federal district?

Mexico's capital is a beautiful city with wide streets, shade trees, parks, and many brilliant flowers. It has both very old and very modern buildings. Since it is on the high plateau, the heat, even in summer, is not too great. The winter, which is like our Canadian spring, is delightful.

A MAP STUDY · Look again at the map on page 20 and notice the limits of the Central Plateau. The mountains which we climbed on the way to Mexico City are the Eastern Sierra Madre. What is the name of the mountains to the west of the plateau? What mountains lie to the south? Notice that the peninsula of Lower California is a part of Mexico. On the map on pages 6–7 find the name of the body of water that almost completely separates it from the rest of the country. Near Mexico City are three high mountains, two of which are volcanoes. Find their names on the map on pages 6–7.

The world's youngest volcano is Parícutin. Not many years ago it grew up in a Mexican cornfield and within a few months was 1,500 the map on pages 6–7.

Volcanoes appear in a region of young, growing mountains where there are likely to be weak spots in the earth's crust. *Lava*, which is rock in hot fluid form, bursts forth, throwing rocks, cinders, and dust from the earth's crust high into the air. The hot lava flows hissing towards lower ground, destroying everything in its path. Clouds of dust, smoke, and steam darken the sky.



Pan American World Airways System

Mexico City from the air.

THE PEOPLE OF MEXICO

Where they live · We have learned that the population of Mexico is larger than that of Canada. More than half the people live in the southern part of the Central Plateau. In most parts of the world, more people live on lowlands than on highlands. Can you think of any reason why the people of Mexico prefer the high plateau?

Who they are · When the Spaniards came to Mexico they found Indians of many tribes, using many different languages. During the long period of Spanish rule in Mexico, many Spaniards married Indian wives. The children of Spanish fathers and Indian mothers are called *Mestizos*. Today more than half the people of Mexico are Mestizos, about a quarter are pure-blooded Indians, and the rest are descended from Europeans and North Americans. Because the country was first explored and settled by Spaniards, many of its people speak Spanish and follow Spanish customs.

Parícutin, Mexico's youngest volcano, grew up in a cornfield a few years ago.

By William G. Preston





C.I.A.A. Photo

Modern machinery is used on this farm on the Central Plateau.

Problems of the people · Many of the thinly settled districts away from the large cities would seem to us very backward. There are several reasons for this. Good farmland and enough water for crops are scarce in most of Mexico, yet more than half of all the people in the country are farmers. Irrigation would help greatly, but irrigation developments cost much money. Education is a problem, too. To educate the large Indian population is difficult, since they speak many languages. Another reason for the backwardness is that at one time there were many revolutions in Mexico and the government changed very often. Now the government is trying hard to bring education and improved conditions to all its people and to help them to live happier, healthier, and more comfortable lives. Not all Mexicans are poor and backward, of course. Many are well-to-do and many are highly educated.

AGRICULTURE IN MEXICO

Ways of farming · As we have learned, more than half the people of Mexico are farmers or ranchers. Much of the farming is done in a simple way with a few hand tools. A long knife, or *machete*, which is used for many purposes; a crude plough, drawn by a donkey if the farmer is able to afford one—these are the most usual tools with which many Mexican farmers try to make a living from the soil. However, modern machinery is being used more and more each year.

Different crops · Corn, beans, and peppers are *subsistence*, or necessary, food crops, and are raised almost everywhere. Other crops which are to be sold, and so are called *cash crops*, are raised wherever conditions are most suitable. These depend largely on the *elevation*, or height above sea level, and the rainfall.

Three belts of climate · The Mexicans speak of three belts of climate in their country, which are due to differences in elevation.

(1) The *tierra caliente*, or hot land, is the warm, wet lowlands along the coast or the deep interior valleys. Here much of the land is swampy, choked with a dense growth of trees and vines and swarming with mosquitoes which often carry the germs of malaria. The moist heat is most unpleasant. Except for part of the Yucatán Peninsula, where conditions are somewhat different, no one lives on the coastal lowlands unless he must.

In the latitude of Mexico, the prevailing winds are not the westerlies as they are in

Canada, but the trade winds about which you learned in your study of the West Indies. These winds blow from the northeast across the Gulf of Mexico and bring heavy rain to the east coast of Mexico. From the forests along the coast come mahogany, wood from which dyes are made, and *chicle* and other gums. Where the forests are cleared, bananas, pineapples, and sugar cane are grown. Rubber plantations are being started in some places. Higher up, tobacco and coffee are grown, and in some of the valleys vanilla beans are important.

(2) The *tierra templada*, or temperate land, begins at about 3,000 feet above the sea and continues to 6,000 feet. Although this region is cooler than the lowlands, there are never any frosts. Crops which require year-round warmth, such as tobacco, sugar cane, coffee, and cotton, are grown.

(3) The *tierra fria*, or cold land, includes the parts of Mexico which rise 6,000 feet or more above sea level. It takes in most of the plateau. Here the weather is cool or even cold throughout the year, but not nearly so cold as Quebec or Ontario is in winter. There may be frosts during the winter and sometimes during the summer. Over most of the plateau there is very little rainfall and the winters are very dry. In this region corn and beans, which form the chief foods of the people, are the most important crops, although wheat and barley, peppers, peas, onions, and alfalfa are also very common.

In the northern parts of the plateau the rainfall is especially light and crop-growing is replaced by ranching. The ranches, or *haciendas*, are often very large, and the *peons*, the workers, live in a village on the hacienda. Whether cattle, sheep, or goats are kept depends upon the pasturage. If the pasture is good there are cattle. Where the grass is thin or short and where the land is more hilly, sheep are raised. Goats can live on scrubby bushes, or on very coarse grasses, and so they are kept on the poorest land.

Land reforms · Until some years ago, most of the land in Mexico was divided into huge haciendas owned by wealthy ranchers. Peons did the work on the hacienda. Now most of these haciendas have been broken up by the government into small *ranchos*, or farms, which are owned and worked by the farmers, who are called *rancheros*. Many of these farms are too small to make a profit, but at least the rancheros can call the land their own.

Another method of holding land is much older, and is found all over Mexico. All the people of a village own all the land around the village in common, or co-operatively. Each man has a share for his own use, but all his land may not be in one place.

A farm on the plateau · Let us take a trip to visit a family not far to the east of Mexico

This chicle worker is placing a bag below a gash in the tree to catch the sap. In which belt of climate does chicle grow?

Three Lions



City. José Pérez lives with his parents in a little village or *pueblo* between a mountain and an ancient, partly-drained lake. The houses of the village are built close together along the road, and most of them are shaded by trees. Each family, José tells us, has some land on the lower slope of the mountain, some on the gentle slope between the base of the mountain and the village, and some on the very flat land between the village and the lake.

On the mountain slopes grow brushwood for making brooms, and pepper trees for fuel. The poor grass and bushes of the lower slopes provide pasturage for the village animals during the summer. Here and there we see strange large plants with stiff, thick leaves. These, José explains, are *maguey* plants, from which the Mexicans make *pulque*, a drink of which they are very fond. This plant does well on dry, stony land where other crops will not grow. The leaves, when dried, are used for fuel, and the villagers use a rough fibre from the core of the plant to make ropes, bags, and baskets.

The gently sloping land behind the village is the best land for farming. Here we see field after field of corn. Beans are planted between the rows of corn in many of these fields. Here and there is a field of barley.

The crops are more varied in the drained fields on the other side of the road. Here is a field of beets; over there are rows and rows of onions. In several places we see another crop which José tells us is chili peppers. Mexicans are very fond of strong spices, and they use these peppers dried and ground in many of their foods. The lovely green of alfalfa is what we notice more often than any other crop. Alfalfa is needed to feed the animals during the dry winter, when

José's little brother watches his mother make tortillas.

By Ewing Galloway, N. Y.



the grass and bushes on the mountain slopes are dry and brown.

José's home · José now invites us to visit his house and garden. The house is built of adobe blocks and is trimmed with stone which comes from the hillside. Like most houses in the village, it has no windows, as it is cooler that way. The roof is covered with red tiles. Beautiful flowers bloom near the doorway. Mexicans are very fond of flowers, and even the poorest family grows some of the many lovely flowers for which the country is famous.

There are several fruit trees in the garden. We recognize apple, pear, and peach trees, but others are strange to us. José points out a pomegranate tree, a fig tree, and two olive trees with gray-green leaves. The garden makes us think of the gardens at home, for in it we find squash, turnips, radishes, and tomatoes growing. Near the garden is a well, and José says that during the winter he has to work hard to draw water for the garden so that the family can have fresh vegetables all the time.

Under one of the olive trees José's mother is busy grinding corn. In front of her, as she kneels on the ground, is the tilted stone *metate*. She pulls a long stone, much like a rolling pin, up and down over the metate. In this way she grinds the corn on the metate so that she will have corn meal to make *tortillas*, the thin corn pancakes her family likes so well.

Inside the house there are two rooms. The floors are of earth trodden down hard. In one room there are a few wooden chairs and several *petates*, or woven mats, on which the children sit. A brightly-coloured picture decorates one wall. Over to one side is the *comal*, or stove. It is like a large griddle supported on stones, with a little fire of twigs or charcoal under it. The second room is a bedroom. José's little brothers and sisters troop in after us, and when we turn to leave, one of the hens peeks curiously at us through the doorway.

Special Mexican crops · Several regions in Mexico specialize in certain crops. For example, there are two market-garden regions in Mexico that are important to us. One is just south of the Rio Grande, and the other is along the west coast. In both of them winter vegetables are grown for northern markets in Canada and the United States.

Cotton is an important crop bordering the Gulf of California at the north, and in the irrigated district farther south. In the northern part of the plateau, the *guayule* shrub is being cultivated as a source of rubber. Thus rubber is produced in Mexico from two sources. On the hot, wet east coast lowland are true rubber trees, while in the northern desert region are the guayule shrubs.

Inland in Yucatán, and south of the Gulf of Campeche, chicle is produced from a tropical tree. As you may know, it is used to make chewing gum. The plain of Yucatán is too low to force the winds to rise and give up their rain. What rain does fall soaks into the limestone rock and runs underground. On the dry soil the henequen plant is grown, from which the fibres called sisal hemp are obtained.

Gathering guayule in the dry northern region.

Acme Photo



THE PENINSULA OF YUCATÁN

On the way to Yucatán · Before we leave Mexico we want to visit the peninsula of Yucatán to see how henequen is grown. We are fortunate in securing from a friend a letter of introduction to Señor Cuesta, the overseer of an hacienda near Mérida.

From Mexico City we go by train to Veracruz. As we leave the Central Plateau, the railroad climbs even higher than Mexico City itself to cross the bordering mountains. Then it begins to descend by loops and curves. Soon the weather begins to get hot; no longer do we feel the fresh breezes of the plateau, for we are now in the tierra caliente and are crossing the plain towards Veracruz. We hope it will not be long before we can board the steamer to cross the Gulf of Campeche to Progreso in Yucatán.

On the way to an hacienda · From Progreso we take the train to Mérida, where we are met by Señor Cuesta himself, who drives us to the hacienda. Soon there are huge fields on either side of us, with many rows of the stiff, swordlike henequen plants.

The owner's home · When we reach the big house of the owner, Señor Cuesta invites us to come in. The rooms are large and contain beautifully-carved furniture. In the centre of the house is a *patio*, or courtyard, where the water in the central fountain tinkles as it falls. Birds are darting among the bright flowers and fruit trees. How different, we think, from José's home on the plateau!

Harvesting henequen · We are surprised at the large size of the henequen fields. Señor Cuesta has explained that only three or four leaves are cut from each plant during the year, and these never all at one time, so that harvesting continues throughout the year. When the leaves are cut, children gather them into bundles. These bundles are then

A water-seller in Mérida. Why is it necessary to sell rain water in the Yucatán Peninsula?

Pan American World Airways System



loaded onto the low, flat cars of the tramline, and are hauled by mules to the mill not far from the owner's house. At the mill the leaves are crushed. From them comes the sisal hemp fibre, which is washed and then carried to the drying yards, where it is hung on wires to bleach in the sun. Later the sisal hemp is sent by railroad to Progreso to be shipped to market. Some of the sisal is used in Mexico, but most of it is exported, some of it to Canada.



James Sawders

Drying sisal fibres in the hot sun.

CITY LIFE IN MEXICO

Work and play in Mexican cities · City life in Mexico is much the same as it is in our Canadian cities. People live in separate houses, apartment houses, flats, or hotels. They work in factories, shops, offices, banks, hospitals, or schools. They travel about in automobiles, taxis, buses, or streetcars. They eat at home, in hotels, or in restaurants. They dress much as we do, and in their leisure time they attend concerts, lectures, the opera, movies, or take part in some sport. Yet Mexico, as is true of other countries, has a few customs of its own.

Offices and shops in Mexico close for several hours during the hottest part of the day to give everyone time to enjoy a leisurely lunch and a *siesta*, or rest. This means that workers remain at their business later and do not finish work until seven or seven-thirty in the evening.

Mexicans play games much like those we enjoy in the summertime. One of their so-called "sports" we do not, however, see in Canada. This is the bullfight. Favourite bullfighters are as popular there as our star hockey players or movie actresses are here.

In Mexican cities the houses often have few windows on the street. In the centre of the house is a small, open patio, where the family can enjoy the fresh air and sunshine in complete privacy.

MINING IN MEXICO

Wealth underground · Mexico is one of the richest countries in the world in minerals. Its gold and silver were the prize which the Spaniards sought more than four hundred years ago. Mexico still mines gold, and more silver than any other country in the world. It also has copper, lead, zinc, tin, iron, and rarer minerals like mercury and antimony. Near the Gulf of Mexico are important oil fields. Tampico, on the Gulf coast, is the most important oil port. Mexico is not so fortunate in its coal fields as in its oil fields,

A silver mine. Mexico produces more silver than any other country in the world.

Ralph Hancock, from Gendreau





Pan American World Airways System

A tanker loading oil at Tampico. Notice the pipes which carry the oil into the ship.

and in the past this fact has held back its progress in manufacturing. There are many streams among the mountains where water power might be developed. A good beginning has been made, and when more hydroelectric power plants are built, manufacturing will greatly increase.

A Mexican silversmith at work. One plain piece is still to be decorated.

Henricks Hodge, from Three Lions

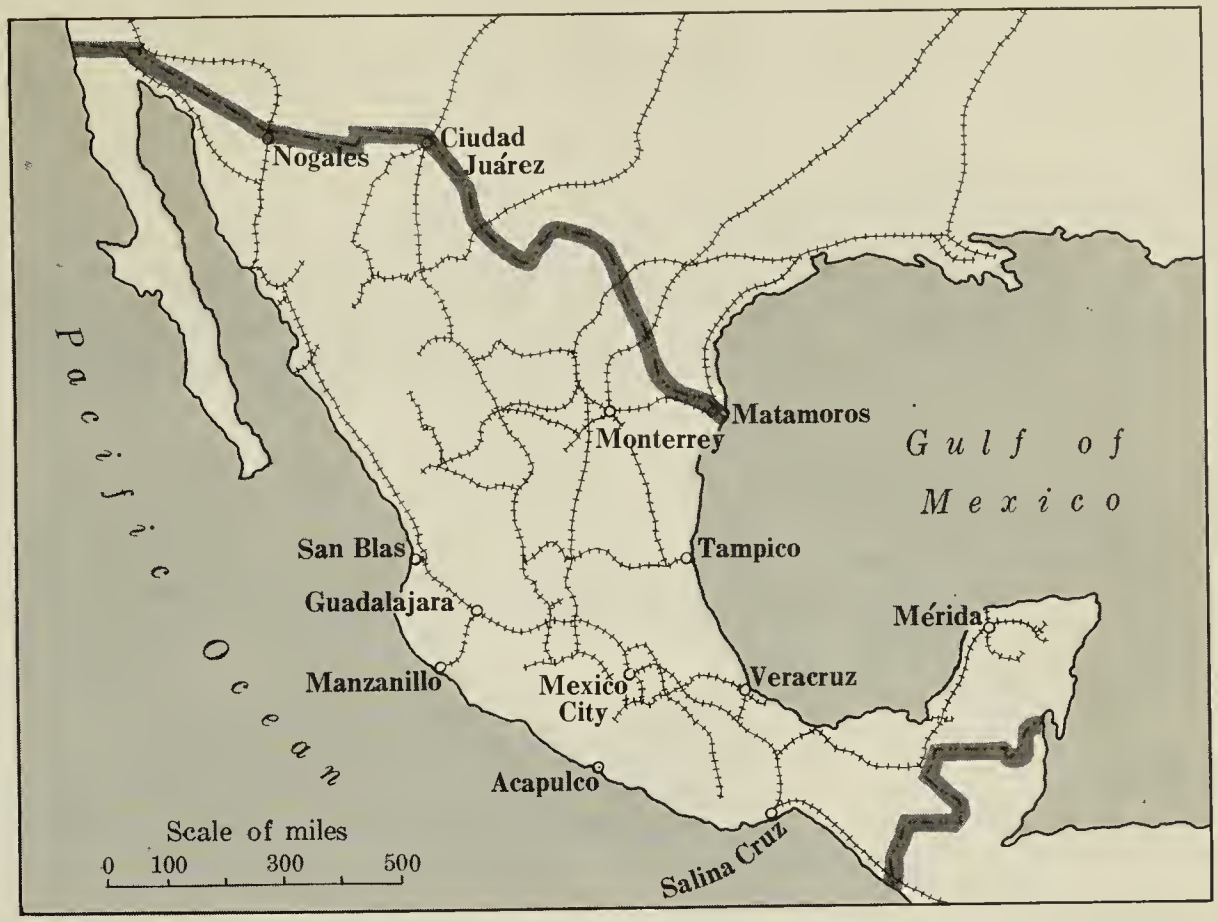


MANUFACTURE AND TRADE

Manufacturing in Mexico · If you examine a list of the exports and imports of Mexico, you will notice that most of the exports are raw materials such as oil, minerals, chicle, and sisal hemp, and foodstuffs such as fruit, vegetables, and coconuts. The imports are largely manufactured goods such as machinery, automobiles, and tools. This makes it look as if Mexico did little manufacturing, which is not quite true. Textiles, chiefly of cotton, and clothing are manufactured in large quantities. In the city of Puebla alone there are dozens of textile mills. Orizaba also has large mills, some of which make bags and binder twine from sisal hemp. Guadalajara, too, has important textile mills, as well as tanneries, shoe factories, flour mills, and meat-packing plants. One type of Mexican shoe, or sandal, the *huarache*, is exported to Canada and the United States where it is popular.

Year by year more manufacturing is being developed. Mexico has many raw products to turn into articles badly needed by the growing population. Workers are easy to find, as there are too many people trying to live off the land. For power, Mexico lacks large supplies of coal, but has plenty of oil and is developing its water power. Canadian engineers are helping in this work. In the growth of manufacturing lies Mexico's hope for the future, and the people realize this.

Handicrafts · In addition to the many people who are employed in machine-manufacturing in Mexico, there are others who are skilful at various handicrafts such as pottery, metal work, wood carving, basket work, the weaving of blankets and shawls, lace-making, and



The principal railways of Mexico.

embroidery. Beautiful examples of Mexican handicrafts are now seen in shops in Canadian cities.

Trade with Canada · Much of Mexico's trade is with the United States, but each year the Mexicans are sending to Canada larger quantities of goods such as tomatoes, peanuts, coffee, raw cotton, rope, sisal, and petroleum. Canadian goods going to Mexico include rubber goods, furs, leather, cotton cloth, newsprint, machinery, railway cars, and other manufactured goods.

Because Canada and Mexico have very different climates, their products are different. This means that Canadians and Mexicans can exchange many kinds of goods. Such two-way trade is a great advantage to both nations.

Another kind of trade which is becoming yearly a more profitable industry for Mexicans is the tourist trade. Among these tourists is an increasing number of Canadians who enjoy the blue skies, beautiful scenery, and gorgeous flowers of Mexico at a time when snow covers the ground at home.

THINGS TO DO · **1.** A group of businessmen are considering investing money in Mexico. Tell where these industries might be developed.

a. Buying hides
b. Mining silver
c. Mining copper
d. Truck farming
e. Banana raising
f. Flour milling
g. Oil refining
h. Cigarette manufacturing

2. On the map above locate the ports of San Blas, Manzanillo, Acapulco, and Salina Cruz. Note the railways that serve these ports. Which port lacks railway connection with the plateau? Why are there few ports on this coast? Why do these seem to be of much less importance than those on the Gulf of Mexico?

3. From other books, pictures, maps, and tourist literature, find out what you can about some of the cities of Mexico, like Guadalajara, Puebla, Chihuahua, Veracruz, and Orizaba. Look up the names of the cities in the pronouncing index before you try to pronounce them.

4. Find out why the waters of the Rio Grande are so brown. What river did you read about last year, the waters of which are brown and muddy? Why are brown waters a danger signal?

5. Add pictures, maps, and articles about Mexico to your scrapbook.

III · Central America



Caterpillar Tractor Co.

The old and the new in Central America—an ox-cart and a Pan American Highway bridge.

THE COUNTRIES OF CENTRAL AMERICA

The countries · Central America, like Mexico, was explored and conquered by the Spaniards. In time six republics independent of Spain were established there. On the map on pages 6–7, find the six republics and the colony of British Honduras. Which country has no coastline on the east? This one has the densest population. Which country has no Pacific coastline? What sea is east of Central America? Which country consists largely of lowlands? Which other countries have large areas of lowlands?

Travel to Central America · You have already learned that Canadian ships sail to the West Indies. Others also go to and from Central American ports. Travel by train or by car from Canada would be difficult, if not impossible, but regular aeroplane flights carry passengers and goods by air from Canada to Florida, and from there across the Gulf of Mexico and the Caribbean Sea to Central America.

CHANGING CONDITIONS

Air transport · Progress has been slow and difficult in the Central American countries. The lowland jungles along the coast and the mountainous surface of the interior hindered travel and transport. As a result, these countries in the past had little contact with one another or with the outside world. This has

now been changed by the aeroplane. Districts which formerly had no outlet except almost impassable mountain trails, now have regular air service, and products of the inland areas can be flown to the seaports.

The Pan American Highway · The Pan American Highway has also brought changes in Central American life. Do you remember how we followed this highway from Laredo to Mexico City? We might have followed it even farther south, to the boundary between Mexico and Guatemala.

The building of the highway has been very difficult, and there are still some sections in Central America that have not been finished. Lofty mountains, dense jungles, deep ravines, torrential rains—all these make road-building difficult and costly. At one place in Costa Rica the road rises to a height of almost 11,000 feet, over two miles, above sea level! The rainy season interrupts work on the highway, and landslides often occur during that time of year.

Where the highway has been completed, the countryside has changed remarkably. Cities have increased in size, and modern buildings, schools, and hotels have been built. Farming is improving, and other ways of working and living are changing rapidly. As people in other parts of America learn of the towering mountains, blue lakes, and beautiful *vegetation*, or plant life, tourists will flock in and help to bring further changes.



Caterpillar Tractor Co.

Hard work on the Pan American Highway in Guatemala's rugged countryside.

Riches waiting to be used · Like Mexico, the Central American countries can grow cash crops, such as bananas, coffee, and sugar cane, as well as food crops for their citizens. Far more of these crops might be grown than are produced at present. The dense forests are rich in cabinet woods, used in making fine furniture, dyewoods, medicinal plants, rubber, and chicle. However, until these products can be transported to buyers, they are valueless.

When regions are opened up to the outside world, not only do products flow out, but all

The railways of Central America.



The highways of Central America.





Tapping rubber trees on a Central American rubber plantation.

kinds of new ideas flow in. People who were living and working as their ancestors did hundreds of years ago have now learned an easier and more pleasant way of living. In many parts of Central America, life is now changing very rapidly. The same thing has happened many times in Canada. In some places the discovery of minerals has, within a few years, changed empty regions into busy modern mining towns.

Results of the Second World War · The Second World War also helped to change Central America. Because of wartime shortages of certain products in other countries, the coffee and cacao plantations were enlarged. *Abaca fibre*, the raw material of manila hemp, which had been produced only in the Philippine Islands, was planted, and the industry grew rapidly. Rubber and *cinchona* plantations were started in some of the lowland areas. As you may know, the bark of the cinchona tree is the product from which the important medicine *quinine* is made.

THE CARIBBEAN LOWLANDS

A region of heavy rainfall · Like southern Mexico, Central America lies in the belt of the northeast trade winds, which bring heavy rainfall to the Caribbean coast. The lowlands along the east coast are very hot, wet, and unhealthful. Except where the swamps have been drained or treated with oil, mosquitoes make life unpleasant and dangerous.

Plantation agriculture · You have heard of plantations in several places—cotton plantations in the United States, or sugar plantations in the West Indies. Later you will read of plantations in South America and Africa. Here in Central America are some of the most highly developed plantations in the world. It is time we found out what plantations are and why they exist.

Some people speak of a plantation as a large farm. It is large, to be sure, often very large, but it is not just like a farm, certainly not like Canadian farms. For one thing, most Canadian farmers own and work their farms. A plantation may be owned by one man, but it is more often owned by a group of men who form a company. The owners rarely live on the plantation or operate it themselves. Overseers, managers, and foremen are hired to live on the plantations, to see that the work is done, and to make them earn a profit.

The workers on the plantations are usually natives who are paid wages, just as factory workers are. They do not own their tools; often they do not own their houses. The company sells them what they need and provides schools for their children. If the crop is good, all is well. If for some reason the crop fails, or prices drop, the plantation may be deserted and the workers suffer.

The banana industry · The most important crop of the Caribbean Lowlands is bananas. Central America and the West Indies are

sometimes called "Banana Land," for in no other part of the world is the banana industry so well organized and so highly developed. Few people who see bananas for sale in our Canadian stores realize just how large and highly organized the banana industry is.

The banana plant grows to a height of about twenty feet. It has long leaves and it bears only one *stem*, or bunch, of bananas at a time. The plants grow best in deep, fertile soil where there is plenty of rainfall, where the heat is great, and where there is never any frost. These conditions are found in the lowlands around the Caribbean Sea, where much of the soil has been formed from volcanic lava and ashes. Canada and the United States provide a large market for the fruit. But bananas spoil easily, and until the days of refrigerator ships few could be shipped.

Today the fruit companies who own and operate the banana plantations have their own fleet of specially built ships, and wharves and warehouses at which the ships dock. They also own miles and miles of railroads and the railroad equipment on the plantations. They own laboratories in which their skilled workers carry out experiments in an effort to improve the fruit and check the diseases and pests that attack the plants.

Not only must there be all this costly outlay for ships, wharves, and other things, but all the kinds of work connected with growing and shipping bananas must be carefully planned so that everything will run smoothly and according to a prepared programme. The bananas must be ready when the fruit ships arrive at the docks, and so the time of arrival of the ships is announced by radio. Then the overseers send out men to pick the stems of bananas.

These men work in pairs. One man has a long-handled knife. He cuts partly through the stalk just above the stem of bananas. He then eases the stem down onto the back



By Ewing Galloway, N. Y.

A mule pulls this banana car along tracks through the plantation to the railway.

of the other man, who stands beneath the fruit. When the latter has a secure hold on his load, the first man cuts completely through the stalk, and helps to place the bananas very gently onto the tram car or truck, which will take them to the railroad which, in turn, delivers them to the waiting boat. Here they are carefully placed on a moving belt which does not bruise the fruit but carries it safely to the hold. You probably know that bananas should be picked and shipped while they are still green. Inspectors with knives stand on either side of the belt and cut out any bananas which have even a tiny spot of yellow or have begun to "turn," for one banana like this may do much damage. On the ship the bananas are stored in a room the temperature of which is controlled throughout the journey to a northern port. Many of the bananas go to New Orleans, which handles more bananas than any other port in the world. Those for sale in Canada sometimes arrive at Vancouver or Boston.

Other crops of the lowlands · Since the lowlands are forested, most of the products of this region come from trees. Mahogany, rosewood, and ebony are exported to make fine furniture. Another export is the wood of the *balsa* tree, which is very light in weight, and is used in making aeroplanes, life



Three Lions

Treats for young and old are found in the markets of El Salvador.

preservers, and floats. Cacao trees produce beans from which cocoa and chocolate are made. Other trees are sources of dyes or medicines. Chicle is gathered in Guatemala and British Honduras, as it is in Yucatán. Do you remember what it is used for?

THE HIGHER LANDS

Crops of the higher regions · Central America, like Mexico, has a tierra templada belt. On the hill slopes there are coffee plantations. Guatemala is the leading coffee-producer of the Central American countries, but El Salvador, Honduras, and Costa Rica also export large quantities. You will learn more about coffee and how it is grown when you study South America. In the high valleys of the tierra templada, sugar cane, cotton, and tobacco are also grown. Higher still, in the tierra fria, corn, wheat, and potatoes are cultivated, and enough cattle are raised on the high grassy pastures so that Guatemala and British Honduras export meat.

Mining in the highlands · Like all the mountainous regions of the Americas, Central America has valuable mineral deposits. Many of the ores could not be mined profitably before the building of roads and the coming of the aeroplane, but some of the mines have been in operation since the time of the Spaniards. A few were operated by the native Indians even before the white men came. Silver, gold, lead, copper, and zinc are the most important minerals.

THE PEOPLE OF CENTRAL AMERICA

People from many lands · In Guatemala most of the people are pure-blooded Indians. In Costa Rica the majority are descended from Spanish settlers. In Nicaragua and El Salvador the greater part of the population are Mestizos. Besides Mestizos, Indians, and people of Spanish descent, Honduras has many Negroes, whose ancestors came from the West Indies to work on the banana plantations in the lowlands. In Panama, because of the importance of the Panama Canal, you will find people of nearly every nationality.

In out-of-the-way districts of Central America the people are still backward and carry on their farming in a primitive way. On the other hand, Guatemala City, which was destroyed by an earthquake in 1917, is completely new, and several other cities are growing rapidly and have modern buildings, wide streets, and beautiful parks. As you would expect, the greater part of the population of all the countries except Panama is found in the highlands, where the climate is more healthful than in the lowlands.

TRADE WITH CANADA

Canada's trade with Central America is not by any means equal to that with the West Indies. From Costa Rica and Guatemala we buy bananas, coffee, and manila hemp, from Nicaragua coffee and grass seed, and from El Salvador coffee and crude drugs. From Honduras we import bananas and manila hemp, and from British Honduras chicle, grapefruit juice, mahogany, and pine.

To the countries of Central America we send a variety of goods, much like those which we send to the West Indies.

The effect of the Panama Canal · This canal, which was opened in 1914, took ten years to build. The United States owns the canal and a strip of land five miles wide on either side of it, which is known as the Panama Canal Zone. Several sets of locks are used in raising and lowering ships from one level to another in their passage through the canal. The canal shortens greatly the distance between the Atlantic and Pacific oceans and has done much to bring trade to the countries and states lying on the west coast of the two Americas. Remember that this canal has been one of the chief reasons for the rapid growth of Vancouver.

Until the canal was opened, goods from Vancouver could not reach eastern North and South America, to say nothing of Europe, as it cost too much to send them around Cape Horn. Now wheat from Alberta is shipped from Vancouver by way of the Panama Canal and across the Atlantic to England. Some years this is cheaper than shipping by the Great Lakes–St. Lawrence route.

SOME THINGS TO DO · **1.** Find out all you can about the banana industry and build a model plantation in your sand table. Find out how long a banana plant must grow before it bears fruit. Also find out to which port the bananas sold in your home town come. From which country do they come?



The Panama Canal Zone.

2. Try to find out what trade is carried on between Canada and British Honduras. What is the capital of British Honduras?

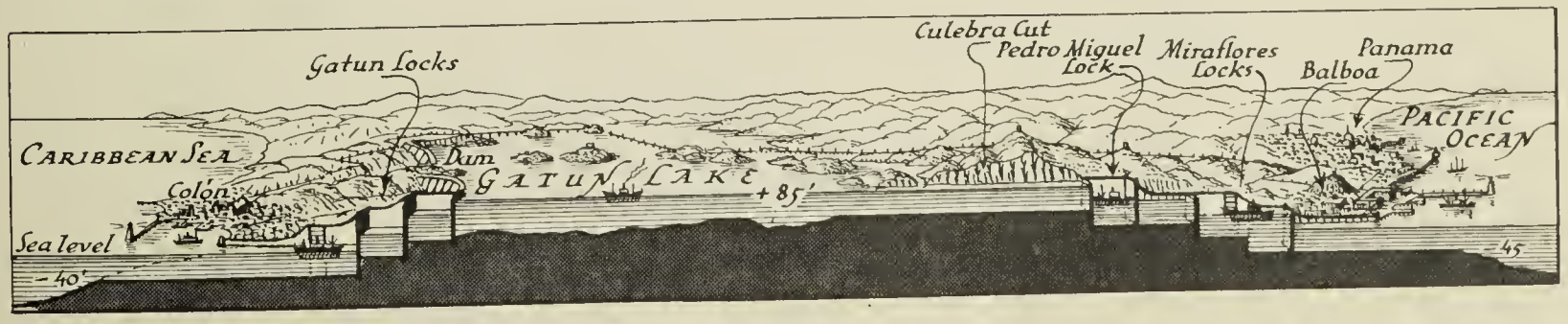
3. Divide your class into groups, and let each group study one of the countries of Central America and report to the class as a whole.

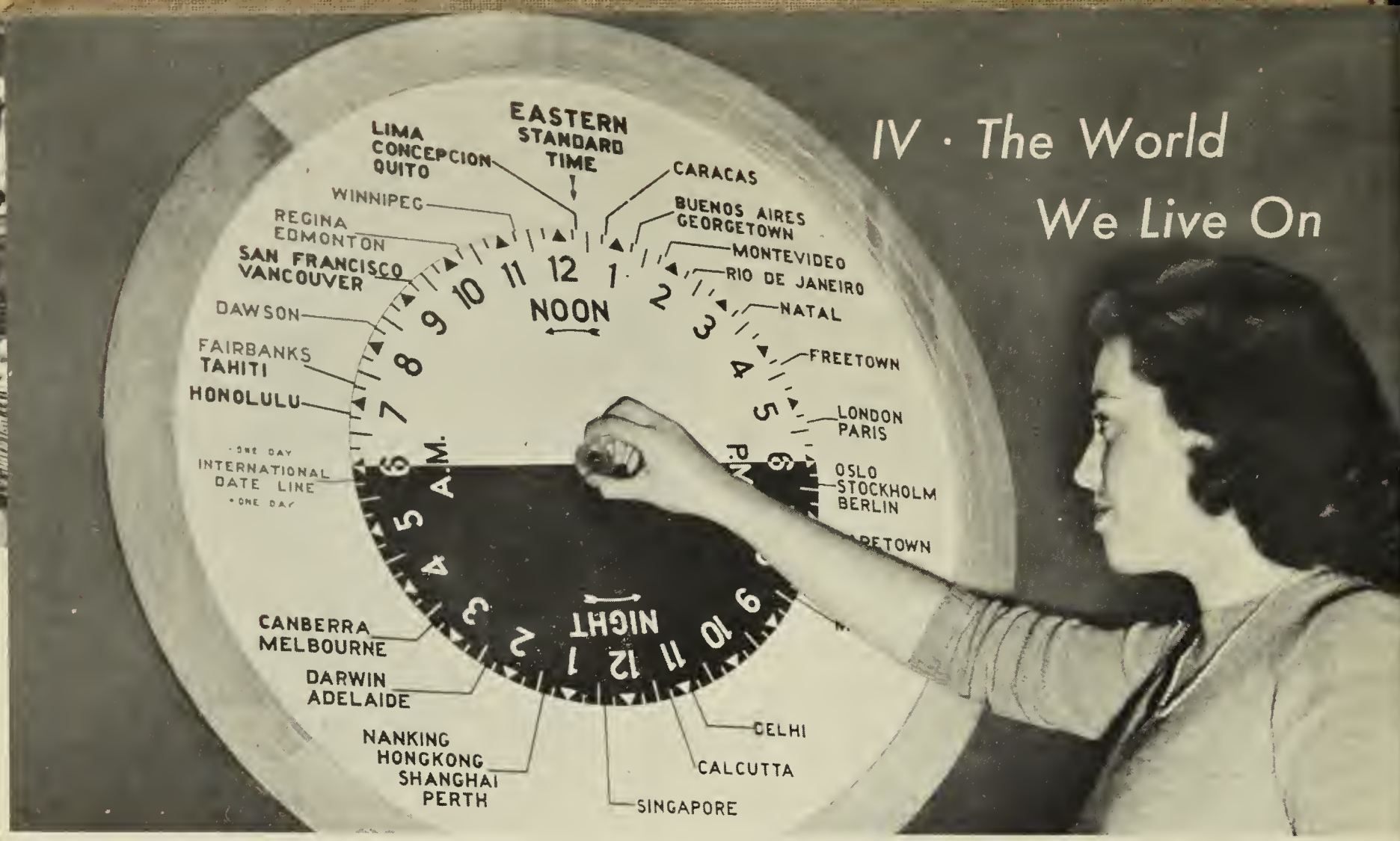
4. Add material about Central America to your scrapbook.

5. Look up in an encyclopedia or other reference books the story of the building of the Panama Canal. Report what you find to your class.

6. The building of a second canal across Nicaragua is often discussed. Study the map on pages 6–7. What difficulties would be met? What advantages would such a canal bring?

The Panama Canal forms a "water bridge" across the land from the Caribbean to the Pacific. Locks were built to raise ships from sea level to cross the land by way of the canal and Gatun Lake.





National Film Board Photograph

A glance at this clock will tell the time at any place in the world.

TRAVELLING SOUTHWARD

In the West Indies, Mexico, and Central America we have met groups of Latin Americans. Now we shall move on to South America, where we shall meet many more of them. Although we are going farther away from Canada, we shall still find many links with home.

We shall meet Canadians here and there in South America—engineers, scientists, business men, and, in ever-increasing numbers, tourists who have come to see beautiful scenery and a way of life quite unlike our own.

Air travel popular · Travel all the way to South America by automobile or by train is still impossible, but steamers carry both cargo and passengers there from Canadian ports. The most convenient way to go is by air, across the United States and the Caribbean Sea. As we journey through South America, we shall see that travel by air is quite common there. In fact, it is the only means of reaching many places.

South of the equator · Before we have gone very far in South America we shall cross the equator and arrive in a part of the world where we shall find many surprising differences.

You already know that the equator is a line drawn around the globe halfway between the north pole and the south pole. It divides the globe into two equal parts. The half to the north is called the *northern hemisphere* and the other half is called the *southern hemisphere*. A sphere is any round object, like a ball or a globe, and "hemi-"

means half. A hemisphere, therefore, is half a globe.

So far in our studies we have travelled only in lands which lie in the northern hemisphere. Since a large part of South America is in the southern hemisphere, this would seem a good time to look ahead, to learn more about the equator and to become familiar with the other lands that lie in the southern hemisphere and how they differ from our lands in the northern hemisphere.

Crossing the line · In the days of sailing ships, every sailor crossing the equator for the first time was welcomed to the southern hemisphere by Father Neptune, the "ruler of the seven seas." Father Neptune was really one of the sailors, wearing a cardboard crown and a long beard of seaweed, and holding in his hand a spear called a trident. This ceremony is still carried on today. Passenger liners stop at the equator to allow King Neptune, his queen, and their companions to come on board.

Why were sailors so interested in crossing the line? Let us see what differences we find when we cross from the northern into the southern hemisphere.

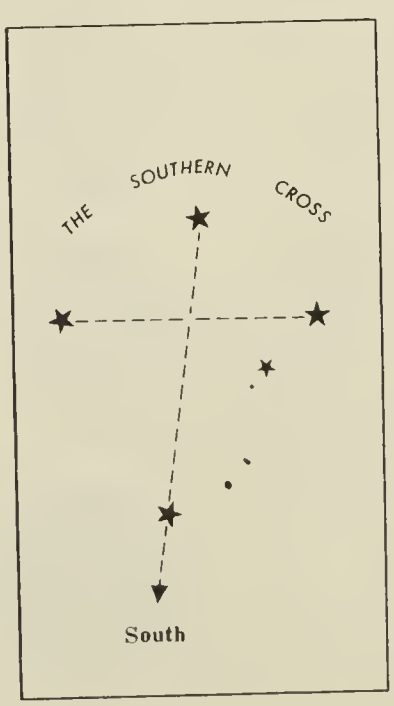
HOW THE HEMISPHERES DIFFER

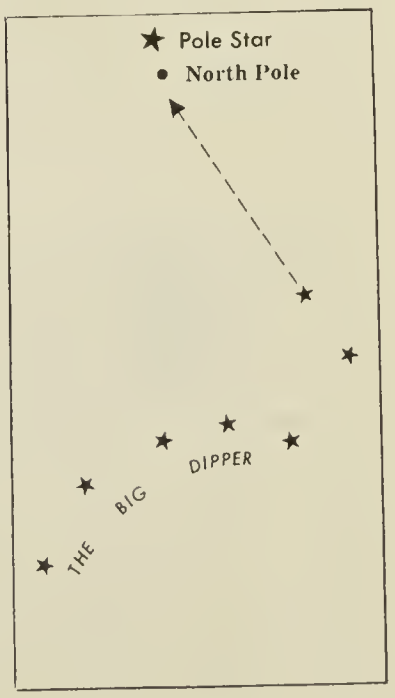
Lands of the southern hemisphere · Many things in the southern hemisphere are different from those in the northern hemisphere. Look at the maps on pages 136 and 137. You will see that there is less land to the south of the equator than to the north. The only large land masses which are entirely within the southern hemisphere are Australia and Antarctica. The equator crosses South America near the mouth of the Amazon River, leaving only a part of the continent on its southern side. While much of Africa is in the southern hemisphere, more of it is north of the equator.

North pole, south pole · Look again at the maps on pages 136 and 137. You will notice another striking difference between the northern and southern hemispheres. In the northern hemisphere water surrounds the pole. In the southern hemisphere the pole is in the middle of a large land mass, the continent of Antarctica.

Groups of stars · On a clear night, we who live in Canada see the group of stars called the Big Dipper. It points the way to the pole star. After crossing the equator to the south, these stars can no longer be seen. Instead, there are other groups of stars which are not visible in our northern sky. The most famous is the Southern Cross. Its five stars are used on the Australian flag, and its four brightest stars appear on the flag of New Zealand. It was this difference in the stars which made the equator important to sailors in the days of sailing ships. They steered their ships by the stars, and so they started the Father Neptune ceremony to mark the place where they must begin to look for different star groups in the skies.

Christmas in summer · It would take a long time to explain all the differences between the two hemispheres. One of the most im-







International Publishing Company

Christmas in Canada.



Three Lions

Christmas in Australia.

portant is that the seasons are just the opposite in the two hemispheres. For example, we think of Christmas as a time when the weather is cold and the ground snow-covered. Yet boys and girls in Australia celebrate December 25th in warm, sunny weather. If they are lucky, they may be taken to a cricket match or spend the day swimming in warm seas. December, January, and February are summer months in the lands south of the equator. South African schools close for the summer vacation early in December and open in February.

Winter sports in July · In southern Chile, where snowfall in the mountains is heavy, there are famous winter resorts for skiing and skating. These resorts are crowded with visitors in June and July, for that is the time of the year when the weather is coldest in the far south.

Harvests in February · The difference in seasons between northern and southern lands has certain advantages. When our part of the world is cold and the days are so short that crops cannot be grown, fruits and grain are ripening in the lands far to the south. Canadian wheat is harvested in August and September, but Australian and South American wheat is harvested and can be shipped to Europe in December, January, and February. Fruit from South America reaches Canada in winter, when none can be grown here.

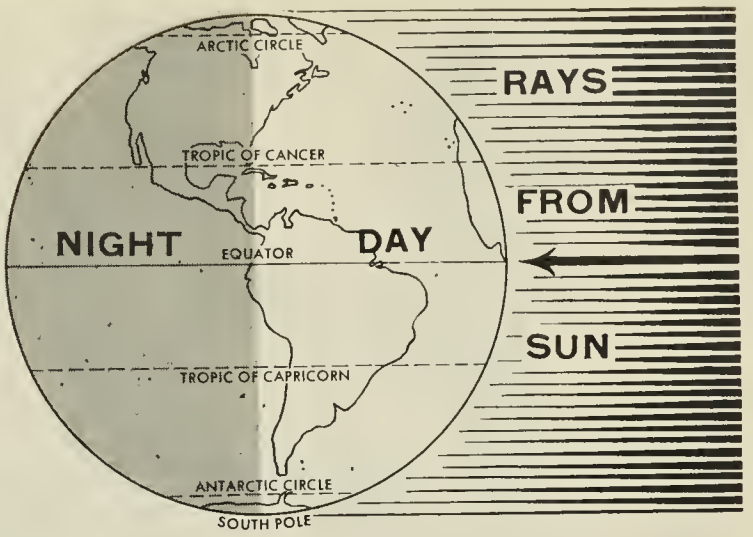
OUR SPINNING WORLD

Sunrise and sunset · The earth is shaped like a ball. It is spinning very fast all the time. It spins around an imaginary line called its *axis*. The ends of this axis are the north and south poles. Only one side of the earth can face the sun at a time. It is daytime on the half facing the sun. On the dark half it is, of course, night. The earth spins through the shadow of night, and back into the light of day. When the place where we are living enters the shadow, we say that "night is coming on" or that "the sun is setting." As we leave the shadow, we say that "day is here," or that "the sun is rising." If you are ever in an aeroplane at dusk, you may be able to see this shadow crossing the countryside as the earth turns beneath you. If you look at the diagram of the earth and sunlight on page 39, you will be able to understand how this happens.

Here is a simple experiment you can do to show what causes day and night. You

will need to use a globe and a flashlight in a darkened room. You know, of course, which is the north side of your classroom. Make sure that the north pole on the globe points in that direction, just as the north pole on our earth points to the north star. Stick a tiny lump of plasticine on the spot on the globe where your home town is located. Now let the light from the flashlight shine straight down on the equator, just as the sun shines on the earth. Notice that half the globe is in the light and half in darkness. Facing the north, *rotate*, or turn, the globe slowly from left to right (west to east). Notice how the marker for your town comes out of the darkness (dawn), into the light (day), out of the light again (sunset), and into the shadow (night).

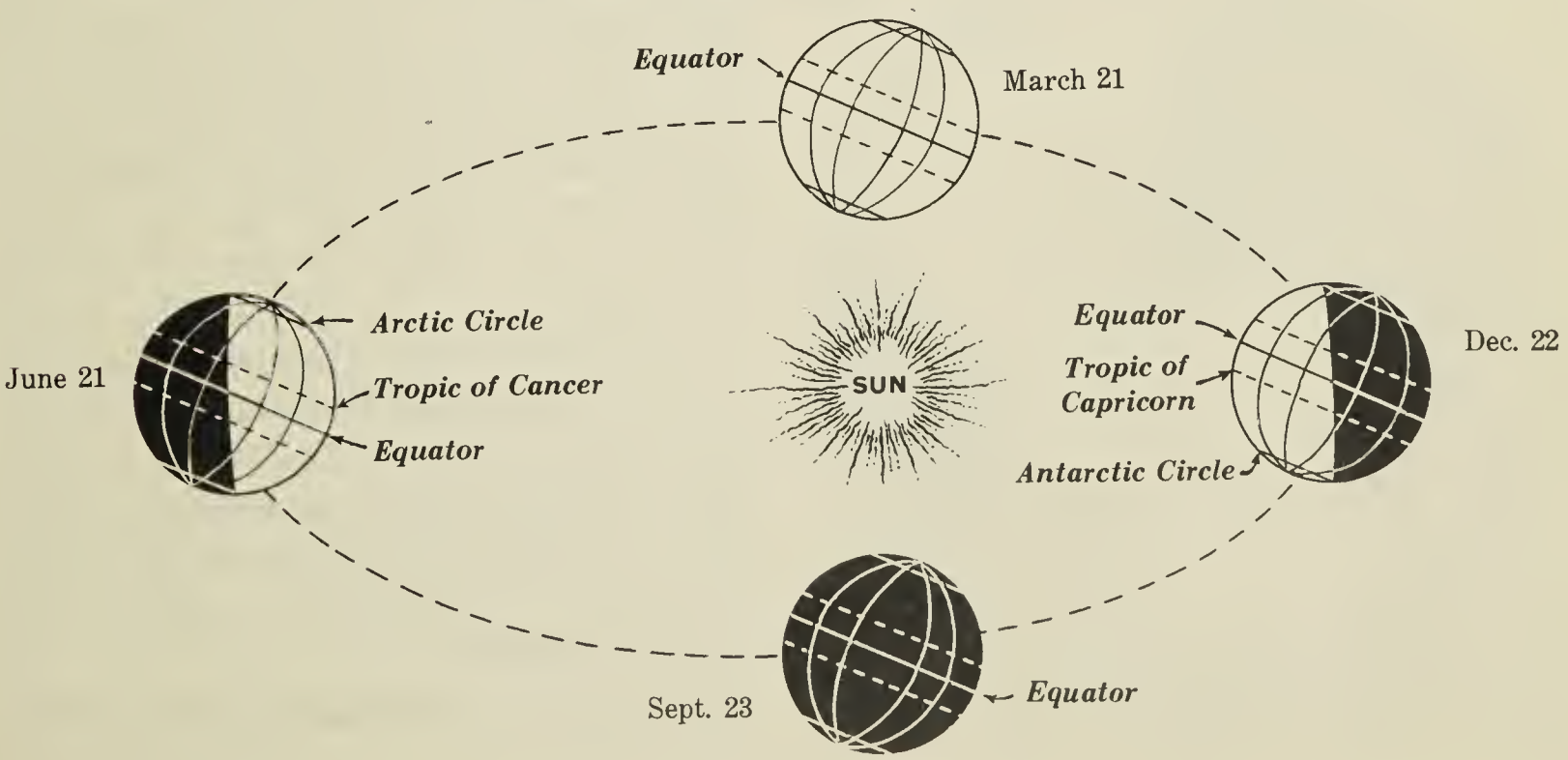
Day and night in March and September · The diagram showing day and night, and the experiment with the globe and the flashlight, show you what happens on our earth on one day in March and one in September, the days on which the sun shines straight down on the equator at noon. When the sun is in this position, sunlight just reaches to the poles, and day and night are of equal length all over the world.



The earth and sunlight.

Day and night are not always the same length, however. There are three reasons why they are not: (1) our spinning earth travels around the sun, taking a year to complete its journey; (2) the axis of the earth is tilted; and (3) the north pole always points in the same direction—to the north star. Let us find out about day and night at other times of the year.

The seasons.





Finding where we live on a globe.

Day and night in June · Look at the diagram on page 39 and find the position of the earth in June. · Notice that the noonday sun now shines straight down on the tropic of Cancer, and that daylight reaches beyond the north pole, but does not reach the south pole at all.

Use your globe and flashlight again. Make sure that the north pole is pointing in the same direction as before—to the north. Shine the light of your flashlight straight down on the tropic of Cancer, as the sun shines on it one day in June. See how the light shines beyond the north pole. Put another piece of plasticine on Devon Island in northern Canada. Facing north, rotate the globe as you did before, from west to east. Is the plasticine on Devon Island ever in the shadow of night? Does the sun ever set that far north in June? Now rotate the globe and watch the plasticine marking your home town. You will see that in June it takes a longer time than it did in March to pass through the light. This shows you that our summer days in the northern hemisphere are longer than days in March. In the southern hemisphere the opposite is true. Days in June are shorter than days in March.

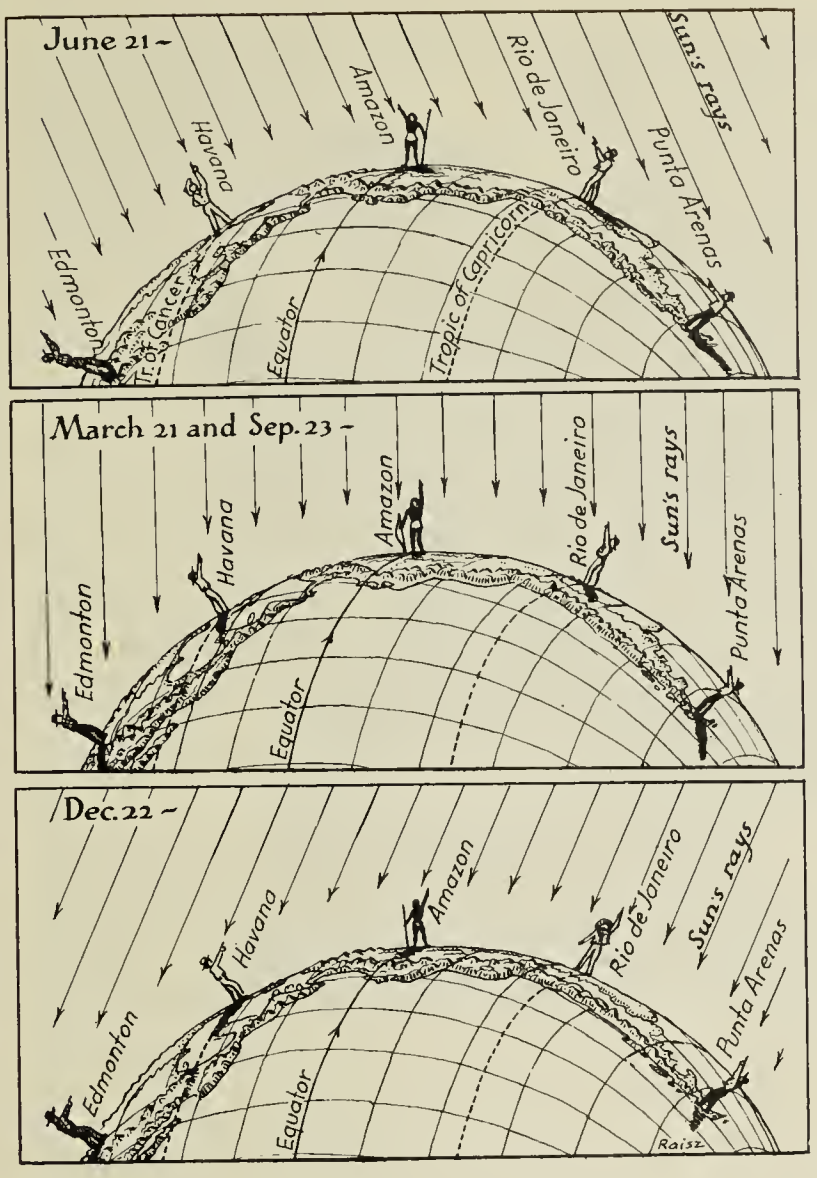
Day and night in December · Look at the diagram on page 39, showing the position of the earth in December. The sun is now shining straight down on the tropic of Capricorn.

Using your globe and flashlight, shine the flashlight straight down on the tropic of Capricorn and rotate the globe as before. Days are short in the northern hemisphere in December, but long in the southern hemisphere.

The seasons · March and September are the "in-between" seasons. As you have seen, day and night are of equal length all over the earth. Also, since the sun at noon is shining straight down on the equator, both hemispheres have an equal amount of sunlight and receive an equal amount of warmth from the sun.

In June the noonday sun shines straight down on the tropic of Cancer, which is within the northern · hemisphere, giving longer days and greater heat to that hemisphere. The north pole receives continuous daylight. This is the summer season in the northern hemisphere.

South of the equator June brings shorter days and less heat, with the south pole in the



Pointing to the noonday sun in June, March and September, and December, from different places on the earth's surface. Which person points north, straight up, and south during the course of the year? Which two never point straight up at any time of the year? In which directions does the person in Havana point? the person in Rio de Janeiro?

shadow of night all the time. June is the time of the southern winter.

In December conditions are the opposite. Where does the sun shine straight down at noon? In which hemisphere is this? Which of the poles is in daylight? Which is in darkness? Which hemisphere has stronger sunlight and longer days? Which hemisphere has summer in December? Try to put into words why this is so.

Remember that Christmas Day, December 25th, comes in winter in Canada. In southern Chile it is summertime on December 25th. In our country at Christmastime the days are short and cold; in Chile they are long and warm. Men at the Canadian weather stations on the northern Arctic islands do not see the sun at all on Christmas Day. Men at the British weather stations in the Antarctic southward from Cape Horn spend the whole twenty-four hours of Christmas in daylight.

LINES ON THE GLOBE

Lines of latitude · Look at the picture of a globe below, and find the line which represents the equator. Other lines parallel to the equator are also shown. If we look at a globe sideways, they appear as in the diagram, but if we were to look at a globe so that the north pole were in the centre, they would appear as circles. These lines which are drawn around the globe parallel to the equator are lines of *latitude*, or *parallels*. Just

Lines of latitude.





Lines of longitude.

as streets in a city have names or numbers to help people find their way, so these lines are numbered to help sailors and airmen find their way across the oceans and continents.

When we measure distances on a flat surface, we use the terms *foot*, *yard*, and *mile*, but when we measure distance around a globe we use the term *degrees*.

The lines of latitude are numbered so that the equator is 0 degrees, and in one direction the north pole is 90 degrees north, and in the other direction the south pole is 90 degrees south. The diagram shows these lines numbered every ten degrees from 0 to 90.

Degrees are shown by a small circle above a number, printed in this way: 15°. Each degree can be divided into sixty parts called minutes. Minutes are shown by a mark to the right of a number in this way: 15′. Each minute can also be divided into sixty parts called seconds, shown thus: 15″. The exact latitude of Ottawa is written in this way: 45° 25′ 30″. By using these latitude lines we can measure the distance of any place on the earth from the equator. The word "North" or "South" (usually written as N. or S.) after the number shows whether the place is in the northern or the southern hemisphere.

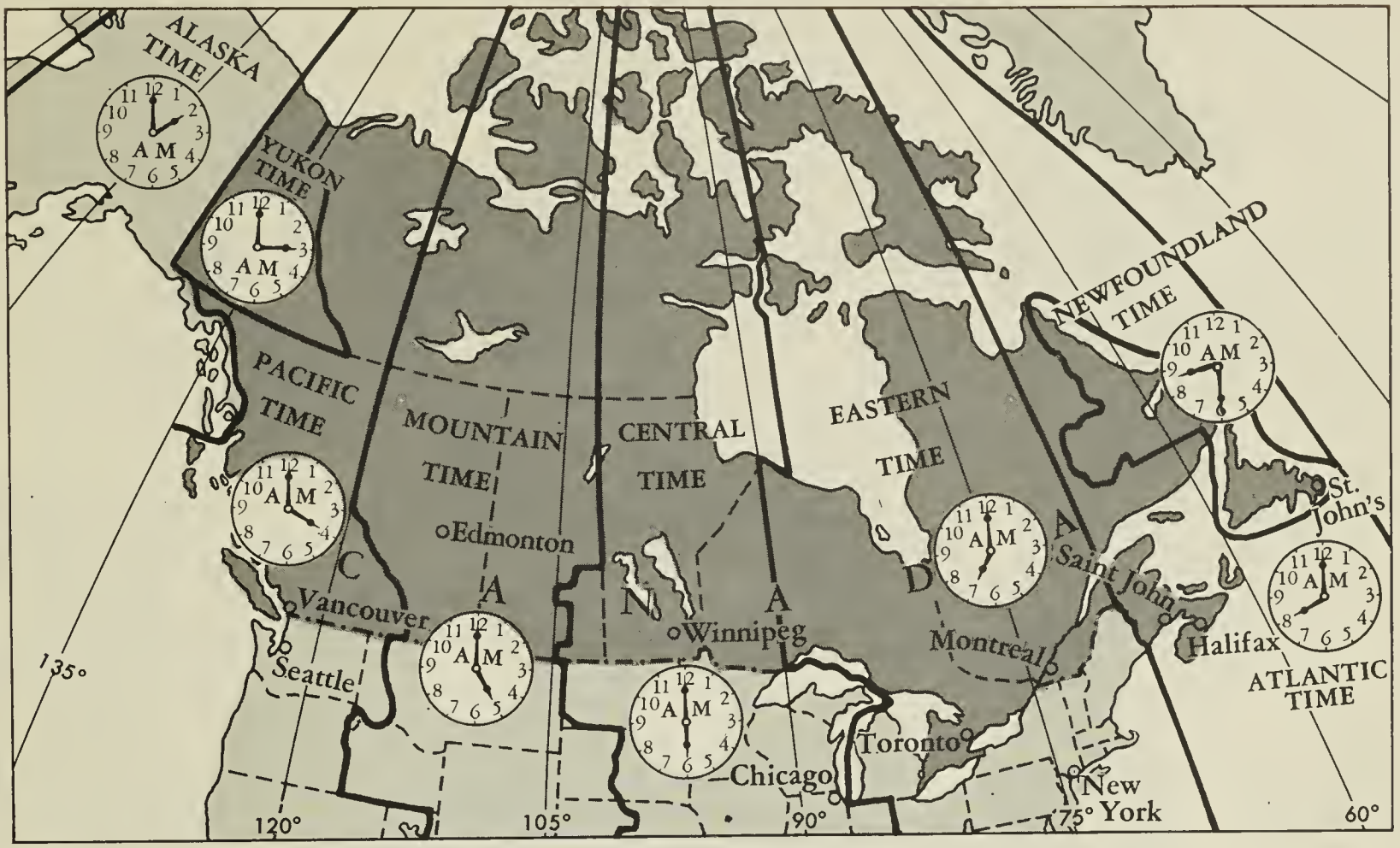
On a map of your province, find the number of the latitude line nearest your home. How would you write it? Check this interesting fact. The boundary between Quebec and the United States, south of Montreal, is 45° N., halfway between the north pole and the equator. What is the latitude of London, England? Find the latitude of Quito, in the South American country of Ecuador. How would you write the exact latitude of the equator itself?

Latitude lines as sun lines · When we were using the globe and the flashlight we discovered certain things about our home town. What is true of it is true of every other place on the same line of latitude. The sun rises at the same time of day and sets at the same time of day. The number of hours of daylight are the same. For these reasons latitude lines have been called "sun lines."

Longitude lines · Cutting at right angles across the lines of latitude are other lines, called lines of *longitude*, or *meridians*. All longitude lines meet at the two poles, as you can see in the diagram.

The distance between lines of longitude is also measured in degrees, but they must be counted to east and west. There is no natural line from which distance can be measured east and west, so a *prime meridian*, or first meridian, was chosen. It passes through Greenwich Observatory, in London, England, and every place on this line is 0° longitude.

When giving the number of any other line of longitude, you must always add E. or W., depending on whether the line is east or west of the prime meridian. To the east of the prime meridian lies the *eastern hemisphere*.



Time zones.

To the west of it is the *western hemisphere*, where we live. So Edmonton, Alberta, is in longitude 120° W., in the western hemisphere, while Shanghai, China, is in longitude 120° E., in the eastern hemisphere.

Longitude lines as time lines · Meridians are useful in telling time. There are 360 degrees around the circle of the earth, and it takes a day of twenty-four hours for the earth to turn around once on its axis. So in one hour the earth turns fifteen degrees. This is the reason for our time zones, each of which is about fifteen degrees wide. They are shown in the diagram above. Thus Montreal, in roughly 75° W. longitude, is five one-hour zones west of London, England. Because of the way the earth turns, Greenwich Time, used in London, is five hours ahead of Eastern Standard Time, used in Montreal, and so a news broadcast from London at noon, Greenwich Time, will be heard in Montreal at 7:00 A.M., Eastern Standard Time.

THINGS TO DO · **1.** Find out the names of the other time zones which cross Canada. Why has Canada more time zones than the United States?

2. When it is noon in London, England, and 7 A.M. in Montreal, find out what time it is in Vancouver.

USING LATITUDE AND LONGITUDE · You can now use latitude and longitude to locate any place in the world. Try these exercises.

1. Find the following places on the map on pages 6–7 and give their latitude and longitude: Bermuda, Kingston (Jamaica), Mexico City, Guatemala City.

2. Find on a globe places which are located at the following points, and give the name of each:

(*a*) Latitude 30° N., Longitude 30° W.
(*b*) Latitude 30° N., Longitude 30° E.
(*c*) Latitude 51° 30′ N., Longitude 0°.
(*d*) Latitude 90° N., Longitude 0°.
(*e*) Latitude 45° 30′ N., Longitude 75° W.

Which Canadian provincial capital is in almost 50° N. Latitude?



V South America — The People

Three Lions

A statue of Simón Bolívar, the great South American hero.

THE PEOPLE OF SOUTH AMERICA

WHERE IS SOUTH AMERICA?

Is it due south? Do you know in what direction the continent of South America lies from your home? Most of us think of it as being due south; but is it? Let's take an aeroplane trip due south from Windsor, Ontario. We fly across the eastern United States and on to the Panama Canal. Then we find ourselves over open water. The continent of South America, which we can just see in the distance, lies entirely to the east of us. It is important to remember that South America, although southward from Canada, is also far to the east of most of it. What South American country is due south of St. John's, Newfoundland?

MAP STUDY · Before we study South America, look at the maps on pages 2 and 125 and compare the continents of the western hemisphere.

1. North America is roughly a triangle in shape, wide at the north and narrow at the south. How would you describe South America?

2. Which continent has the greater length of broken coastline? Of what value is a broken coastline with many inlets and bays?

3. Which continent has the greater area between the tropics of Cancer and Capricorn? Which, therefore, receives the greater amount of heat from the sun? (See the map on page 60.)

4. In North America the Rocky Mountains and other ranges form a great western wall. What is the name of the western mountains in South America?

5. In North America there are two ancient uplands, the Laurentian Upland and the Appalachians. South America also has two such uplands. Locate them. What are their names?

6. Between the eastern uplands and the western mountains of North America stretch great inland plains. Has South America such inland plains? Three local names are given to these plains. Find them on the map on page 125.

7. North America has three great rivers; the Mackenzie flows north to the Arctic Sea, the St. Lawrence east to the Atlantic Ocean, and the Mississippi south to the Gulf of Mexico. South America also has three great rivers. The Orinoco flows north, the Amazon east, and the Paraná–La Plata south. Find them on the map and follow their courses.

8. In what way does the pattern of the rivers in South America show that most of the continent slopes toward the Atlantic?

9. On page 272 you will find the area of North and South America and their populations. Compare them.



Flight due south from Windsor, Ontario.

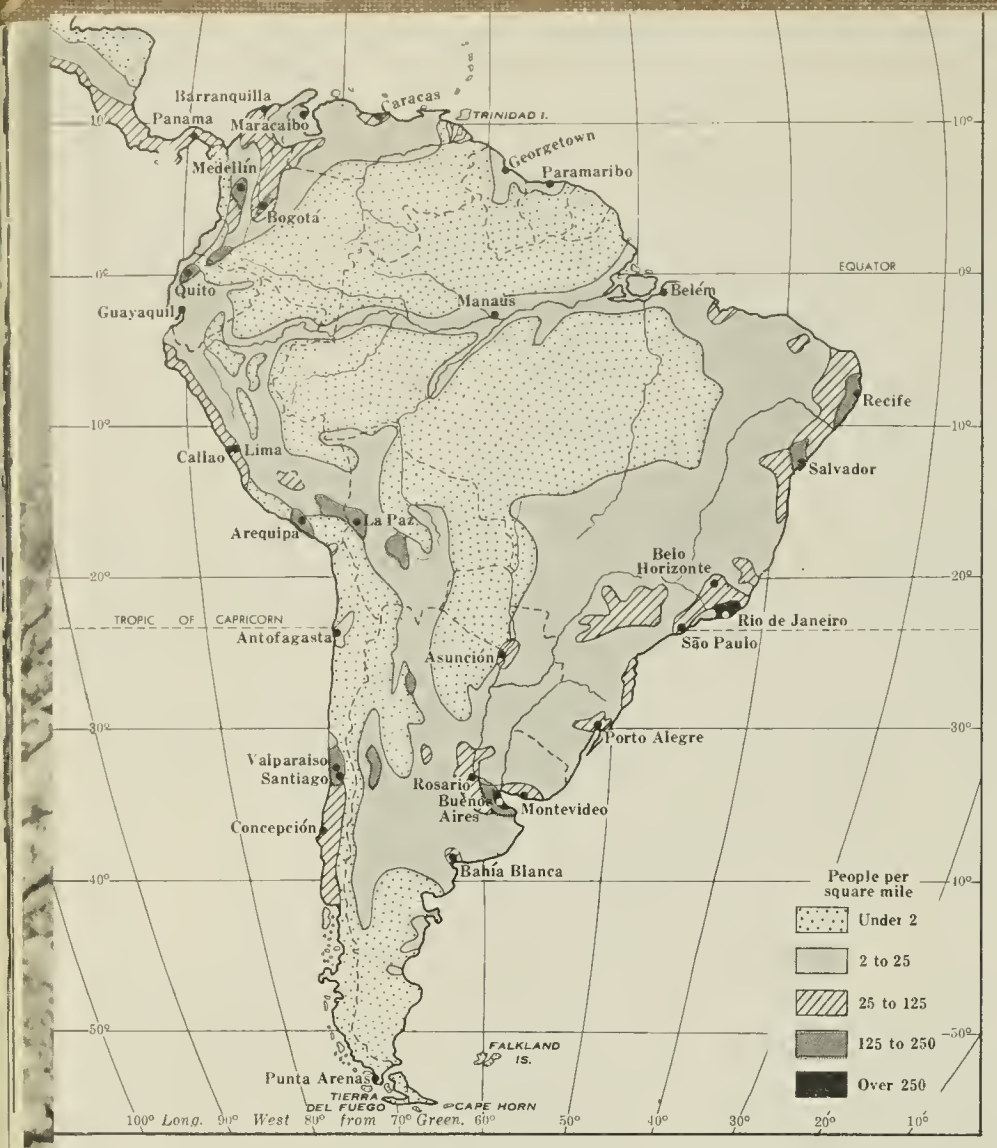
WHERE THE PEOPLE LIVE

Where is your neighbour? If you live in a city or town, your neighbour is right next door, just a few feet away. If you live in the country, your neighbour on the next farm may be a quarter of a mile away, perhaps farther. If you live in the northland, your nearest neighbour may be many miles away. And if you were to go to one of the islands of the far north to live, you might have no neighbours at all.

Canada and South America · We Canadians are used to living in a large country with a small population. Although Canada is the largest country in North America, it has only about 14 million people, and they are not spread out evenly over the whole area. Our northern islands are almost uninhabited, and the Rocky Mountains, much of the northland, and Labrador have very few people. More than half the population of Canada is in Ontario and Quebec, and even in these provinces most of the people live in a small area in the south.

It is much the same in South America. The continent is four-fifths the size of North America, yet its population, about 108 million, is only half as great. If we look at the map on page 46, we shall see that, just as in Canada, there are many people in some areas and none at all in others.

Empty lands · Two large parts of South America are almost empty. These are most of the Amazon River valley and the southernmost part of the continent. There are



Distribution of population in South America.

also other thinly populated regions, such as parts of the Andes Mountains. Why do so few people live in each of these areas?

More crowded lands · Some parts of the continent have many people living in them. Central Chile is one of them. Others are the lands around the estuary of the Plata River, and along much of the Atlantic coast of the continent, especially near the Brazilian cities of São Paulo and Rio de Janeiro. Nine-tenths of the people of Brazil live near the seacoast. Are you surprised to find that many people live in the Andes, between the Caribbean Sea and Peru? They live in the river valleys or on level land among the high mountains.

THE SOUTH AMERICANS OF TODAY

Many people from many lands · As we study the countries of South America we shall find more people of Spanish and Portuguese descent than any other, since it was from Spain and Portugal that the first settlers came. We shall find that there are many Indians, too, for they were the natives that the Europeans found when they came to South America in the early sixteenth century. In the warmer parts of South America we shall find Negroes, whose ancestors came from Africa.

In recent years people from other countries have come to live in South America. For example, there are Germans living in southern Chile, Italians and Germans caring for farms in Brazil, and Spanish, Polish, Italian, Irish, and English people working on the cattle ranches of Argentina. If we travel to the far south we shall see Scottish

The empty Amazon region. Few people make their homes here.

World Wide Photos



The great city of Buenos Aires. Many people crowd into this region.

Pan American World Airways System





Pan American World Airways

Bolas are used today in Argentina to round up cattle.

and New Zealand shepherds caring for flocks not far from Cape Horn. Truly, South America seems to be a meeting place for people from all corners of the earth.

THE SOUTH AMERICANS OF LONG AGO

To understand the South America of today with its great mixture of peoples, we should know something about the very earliest inhabitants, how they lived, and how they were conquered.

The natives of South America · When the first Europeans came to South America the Indians they found were in many ways like the North American Indians. Most of them were in a very backward state of civilization. None of them knew how to make wheels for carts. The only animal that they had tamed to work for them was the llama. They did not know how to use iron. Many of them knew little about farming, although some grew crops which are very important to us today—corn, cotton, cacao, tobacco, and potatoes.

Some of these Indians lived in the vast, gloomy forests of the Amazon. They fed on berries and nuts and sometimes on fish caught in the rivers.

Others lived farther south, on the open grasslands of Uruguay and Argentina. These were more like the Indians of the Canadian prairies. Instead of hunting buffalo, they chased the guanaco (the wild llama) with bows and arrows or with *bolas*. (Bolas are long ropes or leather thongs, weighted at one end by stones or balls of clay. When whirled around, then thrown, the weighted ends wrap around the animal's legs.)

In the far south the Indians lived near the seacoast. They moved from island to island in canoes, carrying their household fire with them. Some lived on the island of Tierra del Fuego. Because of the fires he could see along the shore, Magellan, the Portuguese explorer, gave the island this name. It means the Land of Fire.

The Incas · The most civilized Indians lived high in the Andes. They were the Incas. They built villages and cities. From the city of Cusco the chief Inca, or Emperor, ruled a mighty empire. Roads crossed



The Empire of the Incas.

it from end to end and from the mountains to the sea. The roads were narrow, since there were no carts, but they were wide enough for the messengers who ran over them and for the long llama trains by which goods were carried.

The rulers of this Indian empire lived in great luxury. Fish from the Pacific Ocean on the west and fruit from the Amazon Lowland to the east were served to them at their meals. Cotton for clothing reached the Inca cities from the irrigated desert valleys near the coast. Wool from the llamas, alpacas, and vicuñas that grazed in the pastures among the high mountains was also used to make clothing. We are told that the temples where the people worshipped were lined with plates of gold. Silver, too, was used for ornamental purposes. It came from the rich mines at Potosí, where mining is still carried on.

Ancient Incan walls still standing in Cusco. The stones were cut with simple hand tools and fitted together without mortar.

James Sawders



The coming of the Spaniards · The entire Inca empire was conquered in a few years by a small band of Spanish adventurers. Not many years after Columbus reached the Caribbean Sea, Balboa led his men across the Isthmus of Panama to discover the Pacific Ocean. He claimed the whole of it for Spain. Later on Pizarro, another Spanish explorer, with fewer than two hundred men, pushed southward from Panama into the Andes in search of land which he had heard was rich in gold. The Indians welcomed them. Pizarro captured the emperor and killed him, and without much trouble conquered the whole empire. He built a new capital in the desert near the Pacific and called it the "City of Kings." Today it is called Lima.

Gold, glory, and the gospel · The Spaniards were not at first interested in cultivating the land or raising animals for food and clothing. They came for "gold, glory, and the gospel." By treating the Indians cruelly, they obtained great quantities of gold to take back to Spain. However, as well as the gold- and glory-seekers, there came also devoted priests, who preached the gospel and converted many of the Indians to Christianity.

From the cities that they built on the



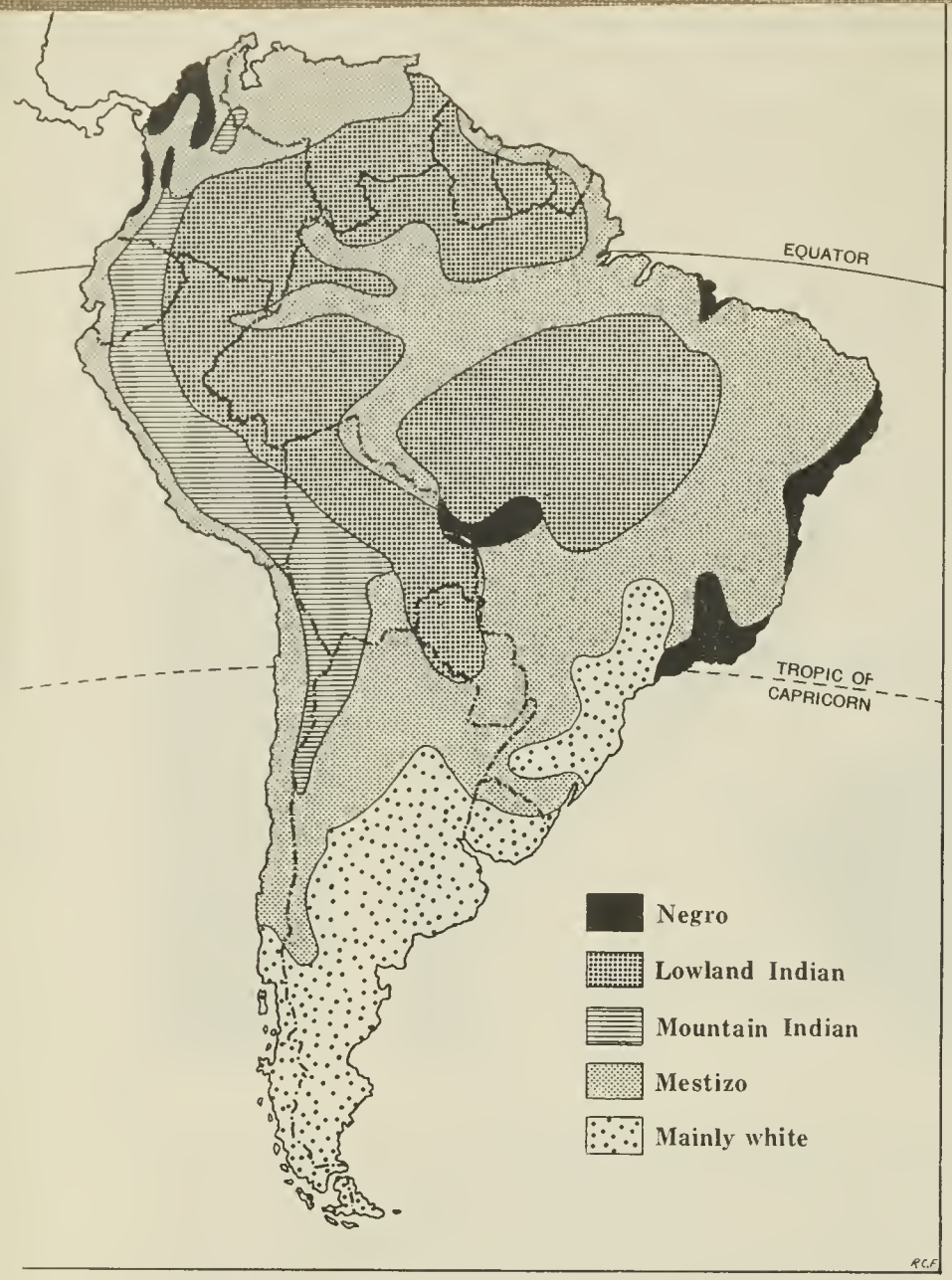
Routes to South America followed by Spanish and Portuguese explorers.

Pacific coast and in the highlands, the Spanish conquerors crossed the ranges of the Andes. Some followed the Amazon River to the Atlantic. Others found a way to the Argentine grasslands and reached the estuary of the Plata. In time the Spanish Empire grew until it included all the western part of South America and large areas of the plains. You can now understand why Spanish is the language spoken in most of the countries of South America, just as it is in the other countries of Latin America.

The Portuguese in Brazil · We know that the language of Brazil is Portuguese. That is because the country was discovered, and large parts of it were settled, by people from Portugal. As early as 1500, Cabral, a Portuguese sea captain, while trying to sail to India by way of the Cape of Good Hope on the southern tip of Africa, was blown from his course and landed on the east coast of Brazil. Follow his course on the map on this page. Later the Portuguese explored and settled much of the country, and for three hundred years Brazil was ruled from Portugal. The first settlements were made on the lowland east of the Brazilian Highlands. This region had a warm and rainy climate and the Portuguese started sugar and other plantations. To work on the plantations they had to bring Negroes, some directly from Africa and some from the West Indies, because the Indians who were natives of the highlands died when they were brought down to the hot lowlands to work.

The Portuguese, like the Spaniards, wanted gold and silver, and in time they began a search for these metals in the Brazilian Highlands. This led to the settlement of the eastern part of the Highlands, which is today a well-populated and important farming region.

Like the Spaniards, too, many of the Portuguese settlers married Indian wives. From their children, who were known as Mestizos, large numbers of present-day South Americans are descended. The Negroes that were brought in to work on the plan-



Where the various peoples live in South America.

tations married with both Indians and Europeans. Their descendants live along the northern coast of South America and the eastern coast of Brazil. Brazil, in particular, has one of the most remarkable populations in the world. From these three groups—Indian, European, and Negro—a new race is being born.

PROGRESS IN SOUTH AMERICA

The struggle for freedom · Over a hundred years ago, the people living in the South American countries which were colonies of Spain and Portugal, united against the government and won their freedom. Simón Bolívar and San Martín led the colonists in their fight for freedom. Although the colonists became free to rule themselves, they did not find it an easy task. They tried uniting some of the different countries under one government, but these unions soon fell apart. Wars arose between the different countries, and quite often there were even wars between different groups of people in the same country. Gradually, however, the peoples of South America are learning to live at peace with one another, to encourage education, and to use their natural resources wisely. All the countries of South America, except the three Guianas, are republics.

People from many lands living together · As we have learned, the men and women who today work on the *estancias* (ranches), plantations, and farms and in the factories and offices in South America, have come from all parts of the world. In recent years most new settlers have come from southern Europe, chiefly from Spain and Italy. One-third of the people of Argentina are Italians or are descended from Italians.

Other settlers have come from such lands as Switzerland, Germany, Belgium, Denmark, France, Iceland, Poland, Rumania, Sweden, China, and Britain. See how many of these countries you can find on a world map. There are also some who have moved from the Canadian prairies to Paraguay.

We know that in some South American countries there are more people who are Indians and Mestizos than there are people of entirely European descent. Look at the map on this page to find out of what countries this is true. In Argentina and Uruguay there are more people of European descent, since people from Europe have continued to settle in these countries where the climate is more like that of the parts of Europe from which they came.

STUDYING THE MAP · Study the map of the peoples of South America to find the answers to these questions:


Caribbean Sea
ATLANTIC OCEAN
Barranquilla
Cartagena
Maracaibo
Caracas
VENEZUELA
Orinoco R.
Georgetown
Paramaribo
Cayenne
BRITISH GUIANA
SURINAM
FR. GUIANA
Cauca R.
Medellín
Bogotá
Manizales
Cali
COLOMBIA
Negro River
EQUATOR
Quito
Guayaquil
ECUADOR
Maranon R.
Amazon River
Belém
Fortaleza
Madeira R.
BRAZIL
Ucayali R.
PERU
Recife
São Francisco River
Lima
Salvador
BOLIVIA
La Paz
Sucre
PARAGUAY
Paraguay R.
Paraná River
Belo Horizonte
São Paulo
Niteroi
Rio de Janeiro
Santos
Curitiba
TROPIC OF CAPRICORN
PACIFIC OCEAN
Asunción
Tucuman
Uruguay R.
URUGUAY
Porto Alegre
Cordoba
Santa Fe
Rosario
Mendoza
Valparaiso
Santiago
Montevideo
Buenos Aires
La Plata
Avellaneda
Bahía Blanca
ARGENTINA
ATLANTIC OCEAN
Scale of miles
0 200 600 1000
★ Capital cities
o Cities with more than 100,000 people
R.C.E.

UNIVERSITY

1. In general the Indians of South America live among the mountains, the Negroes along the hot, wet coasts. Where do the white people live?

2. In which country of South America do most of the descendants of the Incas live? In what sort of region do they live?

SOMETHING TO THINK ABOUT · Mountain Indians have, through the ages, become "barrel chested," to allow their lungs to expand enough to get the oxygen they need from the thin air of high altitudes. They can do heavy work in their mountain home, but when they come down to the hot lowlands many of them die. What reasons can you think of why this should be so?

FOR YOU TO DISCOVER · Find out what you can about Francisco Pizarro, the Spaniard who conquered the Incas. Report your findings to the class.

You should also know more about Simón Bolívar, the great hero of northern South America. What can you find? You will see many statues of him as you visit the cities of Colombia and Venezuela.

WHY THE PEOPLE LIVE WHERE THEY DO

We have learned something about the kinds of people who make their homes in South America. We know that they occupy only a small part of the continent and that much of the land is almost empty. What are the reasons for this? Why do people crowd together in some places when there is plenty of room for them elsewhere?

Working to live · There are many reasons for the uneven distribution of people. Some parts of the country are too dry, while others are hot, damp, and unhealthful. Some are too high. Some are too far from the seacoast, roads, or railroads for the exporting of goods.

The most important reason is that in order to live people need to work. People can live only where work can be done successfully.

There are many different kinds of work. Some men grow food for themselves and for others. Some care for animals to obtain milk or meat or hides. Others work in the mines to get coal, and copper, gold, and other metals. A miner cannot mine where there are no minerals. A rancher cannot raise animals unless he can find grass and water to feed them. The farmer cannot grow food on rocky or poor soil. Plants will not grow where there is no water or not enough sun. The factory worker must live where there are

The plains of Argentina have good soil, enough rainfall, and plenty of sunshine to produce fine harvests of wheat. Farmers can make a good living on these fertile lands.

Courtesy of International Harvester Company



factories, and the office worker where there are offices. People of all occupations live where they can best earn a living.

Rich lands and poor lands · In some parts of South America nature has been very generous. The soil is fertile, there is water, and there is plenty of sunshine. In such places crops of corn, or sugar, or tobacco, or coffee, or wheat can be grown without great labour. Many people can make a living. In some regions they can do this by using only a small piece of land. In such places people can live close together.

In other places water is scarce, the land is rocky, or the soil is less fertile, the weather is cold, the sky is cloudy much of the time, and so fewer crops can be grown and poorer crops are harvested. Where this is true, the farmer needs more land on which to grow food. He must live farther away from his neighbour.

Too hot and too wet · We usually think of rainfall and sunshine as blessings. They bring us better harvests. Yet large stretches of South America receive too much of these blessings. The sun is so bright and so hot and the rain so plentiful that the land is covered with a dense tangle of trees and undergrowth. The only open spaces are along the rivers. If the land is cleared, weeds and shrubs grow up again quickly. In fact, everything grows quickly—insects, flowers, vines, trees. The climate is so hot and damp that work is tiring and everyone must rest in the middle of the day. Under such conditions it is very difficult to make a good living. That is why there are so few people in the Amazon region of Brazil.



Screen Traveler, from Gendreau

The tropical rain forests of the Amazon are too hot and too wet for good farming.

THINGS TO DO · **1.** Name one South American country in which most of the people live near the seacoast, and one in which most of the people live in the mountains.

2. Make sure that you know the name and location of all the countries of South America. Locate on a map the cities mentioned in this chapter.

QUESTIONS TO ANSWER · **1.** Describe the bola used by the Indians of South America. For what was it used? The *gaucho*, or South American cowboy, still uses it to separate an animal from the herd. What does a Canadian cowboy use in its place?

2. What were the Spanish and Portuguese seeking when they came to South America? Were the French and English looking for the same thing when they explored North America?

3. What is meant by a republic? How many republics are there in South America? Which are the two largest? Which is the smallest?

4. The Spanish explorers went mostly on foot or on horseback when they explored South America. How did the French travel in Canada? Can you find a reason for the difference?

VI · South America — The Land



James Sawders

Rugged mountains and a fertile valley in the Andes. South America has also vast plains, dense forests, mighty rivers, arid deserts, and ancient hills and plateaus.

THE LAND

THE BUILD OF SOUTH AMERICA

Notice that word "build" in the heading. We might use the word "plan," or "pattern," but "build" reminds us that the continent was really built up through millions of years, and that all parts are not the same age.

How the continent was formed · The most ancient parts are the Guiana Highlands and the Brazilian Highlands in the east. From these uplands, during millions of years, rocks and pebbles, sand and soil, were carried by streams and by the wind and laid down beneath the surrounding sea. In this way the high mountain ranges were worn down, to become plateaus and low ranges. Then, far to the west, there began a movement of the earth's crust. It pushed up in wrinkles and folds, forming the very high Andes Mountains. Again long ages passed, while the ranges were *eroded*, or worn down, and gradually the floor of the shallow sea between the western mountains and eastern uplands rose until it appeared above the surface of the water. Thus were formed the great central plains of the continent.

Old, Worn-down Mountains

The Brazilian Highlands · These old, worn-down mountains are much like our Laurentian Upland. They are highest where they

face the Atlantic Ocean. The southern part of this high front or escarpment is called the *Serra do Mar*, the Mountains of the Sea. It is high and steep enough to make railway and road building difficult. Between the Serra do Mar and the Atlantic Ocean is a narrow coastal plain. To the west the uplands slope down more gently to plains along the Amazon and Paraná rivers. In places the upland surface has been worn away by rivers flowing in deep canyons. This too makes road building difficult. Not many people live in some parts of the uplands.

The trade winds blowing in from the sea leave much of their moisture on the eastern side of the uplands and on the narrow coastal plain. Here bananas, pineapples, tobacco, cassava, and rice are grown, and, higher up, cotton, sugar, cacao, and coffee. Inland there is not enough rain throughout the year for the growth of forests, so we find tropical grassland and scattered trees, or *savanna*, parts of which are used for cattle.

The Guiana Highlands · These uplands lie to the north of the equator. Their southern front drops steeply to the low, hot plains of the Amazon. The more gentle slope faces north. The highest mountain, Mt. Roraima, has a flat top like a giant table. As we might expect, the climate of the lower parts of the Guiana Highlands is hot. Where there is enough rain, the region is covered with



Philip Gendreau, N. Y.

Picking cotton in the Brazilian Highlands. Why does cotton grow well here?

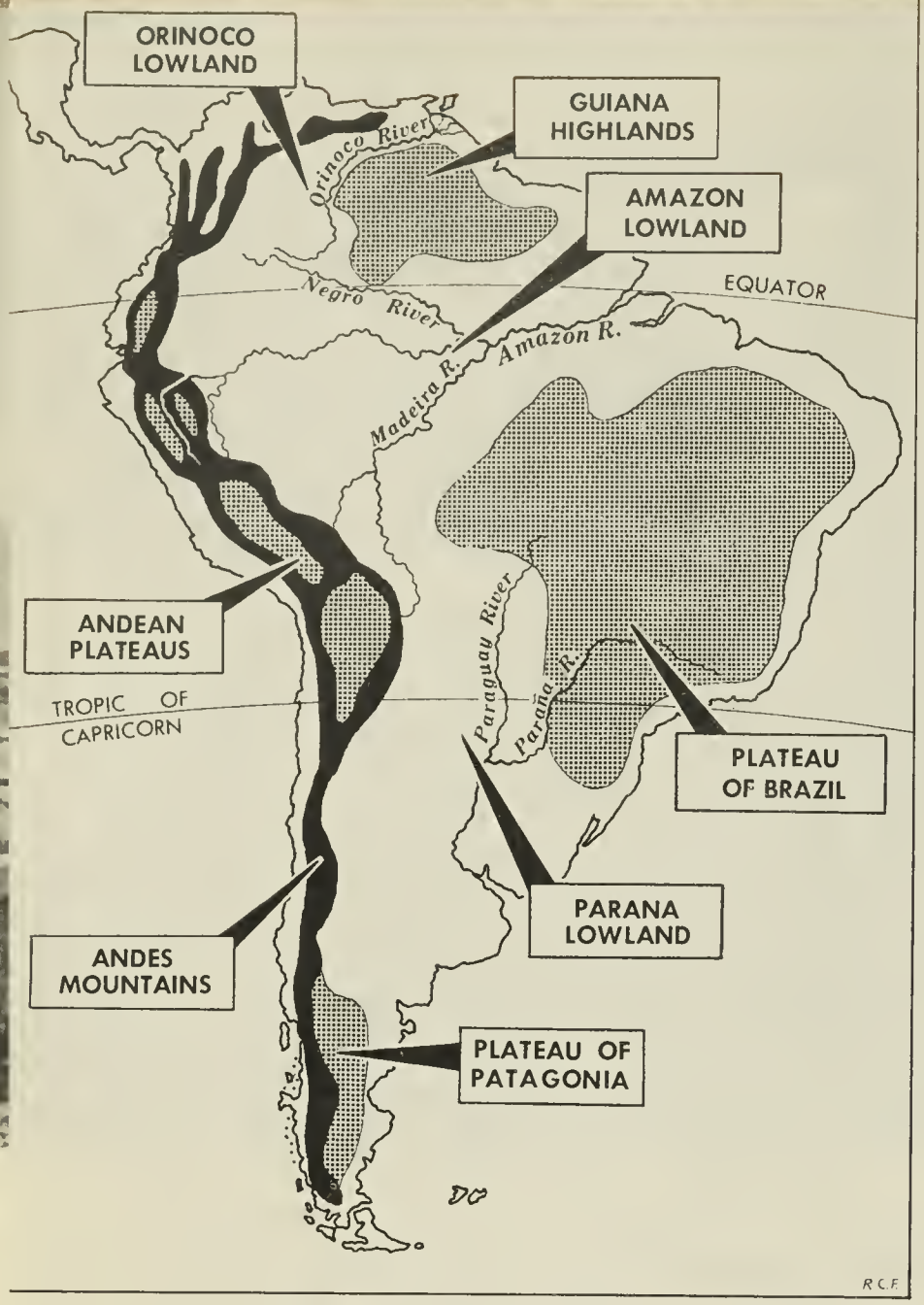
thick tropical forests. Elsewhere there is tropical grassland or savanna which can be used for grazing cattle. The wealth of minerals and forest products has scarcely been touched. Few people live here, and much of the region has not been explored.

Ancient Plateaus

The Plateau of Central Brazil · West of the Brazilian Highlands, between the basins of the Amazon, Paraguay, and Paraná rivers, is the Plateau of Central Brazil. The region is one of tropical grasslands, here called *campos*. Cattle-raising is the chief industry. As in most dry grasslands, life is uncertain. The rains come only at certain seasons of the year. Sometimes the rainy season is too short and the dry season sets in before the grass has had time enough to grow. Some-

A cross section of South America, showing how the continent is formed. To the east are the worn-down highlands and plateaus, to the west the rugged Andes. Between these stretch the fertile plains.





A landform map of South America.

Railway building is difficult in the Andes.

James Sawders



times there is not enough rain for full growth. At other times the rains may come suddenly and in torrents, so that rivers flood the dry river beds and cattle drown by hundreds.

The Plateau of Patagonia · On the leeward slopes of the southern part of the Andes Mountains is the Plateau of Patagonia. It is a high, rough region and is dry, windy, and cool. It is used mainly as pasture for sheep. Between the plateau and the coast is an even drier plain.

Young, Rugged Mountains

The Andes Mountain region is different from the other highland regions in South America. The Andes are said to be "young," because they are not so ancient as the Brazilian Highlands. They are rugged, with many sharp peaks, as are the Rockies.

The Andes form the longest mountain chain in the world. For 3,500 miles there is not a single pass through them lower than 10,000 feet above sea level, and there are at least a dozen peaks more than 19,000 feet high. Only the Himalayas in Asia are higher.

Ranges and plateaus · For much of their length the Andes are made up of two main ranges, with many shorter ranges running north and south or east and west. The central section of the Andes is the highest region in the western hemisphere. Between the ranges are many high plains and plateaus. The largest of these is the Plateau of Bolivia, called the *altiplano* (high plain), more than two miles above sea level.

Barrier to travel · The Andes stand in the way of travel and transportation. They are hard to cross. Although there are eight main railway lines across the Rocky Mountains in North America, there are only three across the Andes, and these have to climb as high as 15,000 feet. Passengers

travelling at this height must sometimes use oxygen from tanks in order to breathe, since the thin air does not contain enough oxygen. Had it not been for the minerals in the Andes, men would probably never have tried to build railroads into these high mountain ranges.

Lowlands

The Amazon Lowland · The largest of the physical regions of South America is the Amazon Lowland, which is a huge plain. Because it is lowland and near the equator, it is warm the year round. The rainfall there is so heavy that most of the region is covered with thick, tropical forests, or *selvas*. From the map on page 125 you can see that most of the Amazon Lowland lies in Brazil.

The Orinoco Lowland · This lowland is in Venezuela and Colombia, north and west of the Guiana Highlands. The weather is warm the year round, as in the Amazon Lowland, but it is not always wet. From May to October so much rain falls that much of the land is under water. From December to March, little rain falls, and the land becomes dried out. The tropical grassland of the Orinoco Lowland is known as *llanos*. Few people live there, and cattle-raising is the only occupation of importance. As on the campos of Brazil, sometimes even this is difficult.

The Paraná Lowland · Southward from the Amazon Lowland is the Paraná Lowland, which is also used for cattle-raising. Look at the landform map on page 56 and the map on page 125 and see what countries share the Paraná Lowland. The northern part of this lowland is the *Gran Chaco*. To the south it broadens into the *Pampa* of Argentina and Uruguay, one of the most fertile lowlands in the world.



Thomas F. Lee, from Ewing Galloway, N. Y.

The llanos of the Orinoco Lowland.

SOMETHING TO DO · On an outline map of South America colour in brown the Andes Mountains and in yellow the Brazilian Highlands, the Guiana Highlands, the Plateau of Central Brazil, and the Plateau of Patagonia. Print the name of each in the proper place.

QUESTIONS TO ANSWER · **1.** Why has no railway been built from Rio de Janeiro to Manaus on the Amazon? Would there be enough freight and passengers to pay for running the trains?

2. What difficulties are met with in building railways in (*a*) western South America; (*b*) northern South America; (*c*) eastern Brazil? Write a paragraph under the heading "Railway Building in South America."

3. What range of mountains in North America is very much like the Andes? In what ways are the two mountain systems alike? In what ways are they different? Why are many people found living high up among the mountains in parts of South America and not in most of the mountainous regions of North America?

RIVERS OF SOUTH AMERICA

South American rivers are used to carry people and freight in places where there are no railways or roads. It is important for us to know where these rivers are. The three most important rivers of the continent are the Amazon, the Paraná, and the Orinoco.

The Amazon · The Amazon is by far the largest river in South America. In places it is so wide that a person standing on one bank cannot see the other side. Many of its tributaries are more than a thousand miles long. In some places rain which falls on the Andes, within 100 miles of the Pacific Ocean, is carried 3,300 miles eastward to the Atlantic. Find the headwaters of the Marañon River on the map on page 125. Follow its course to the Amazon, and then to the sea at Belém. Although the Amazon is not the longest river in the world, it carries the greatest amount of water to the sea. It is so deep that ocean steamers can easily reach Manaus, 1,000 miles from the sea. River steamers and small ocean-going vessels can continue another 1,300 miles to Iquitos in Peru. Smaller boats reach the Marañon at the foot of the Andes.

The Paraná River · The Paraná, with its tributaries, supplies most of the water flowing into the Atlantic through the Plata River. Paraguay uses this river to export some of its goods without shipping them through neighbouring countries by train.

The Orinoco of Venezuela · The Orinoco River has most of its course in Venezuela, with its large delta not far from the island of Trinidad. The river is difficult to navigate because the water level varies greatly with the seasons. During the rainy season it is a raging flood, but during the dry season there are sandbars and the water may be too shallow for boats.

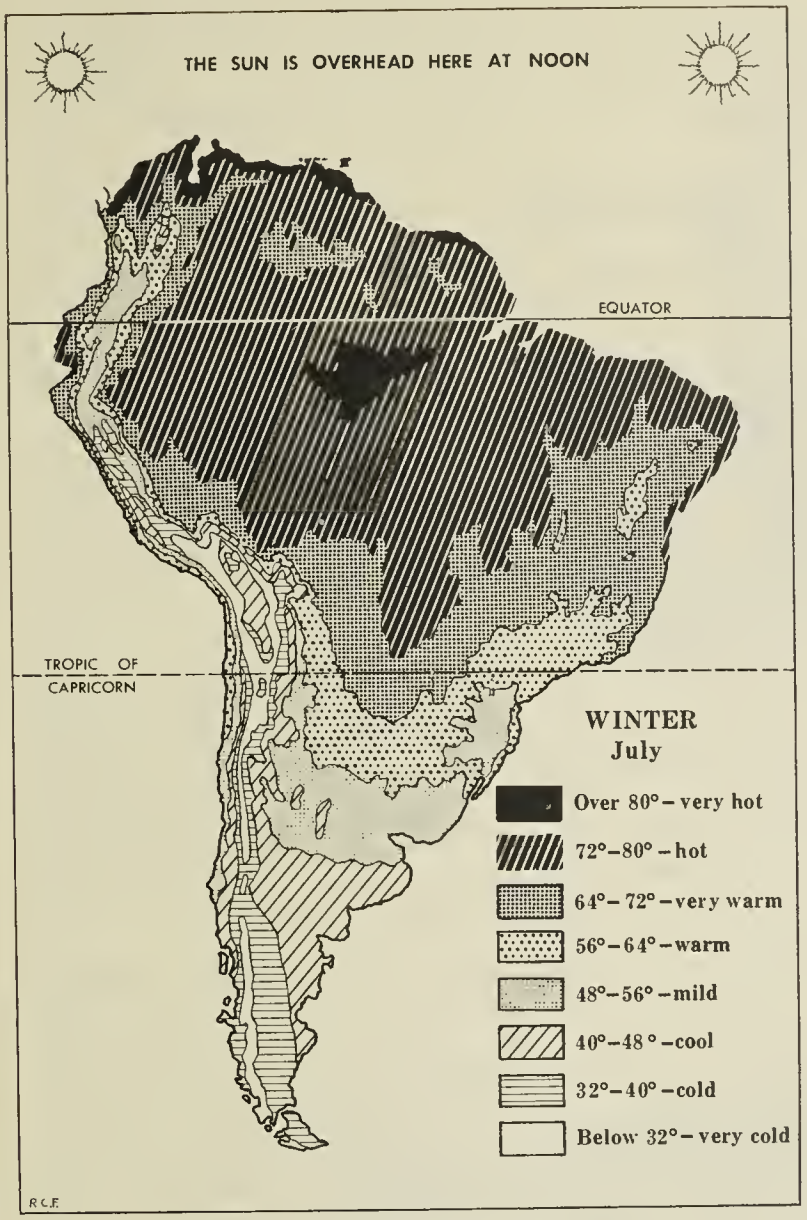
Other rivers of South America · There are other important rivers in South America besides these three. Find these rivers on the map on page 125: Magdalena, São Francisco, Pilcomayo, Negro. Can you find any very long rivers which flow into the Pacific?

A COMPARISON TO MAKE · Compare the Amazon with the St. Lawrence River, using the following headings: (*a*) length; and (*b*) nearness to Europe, where so many products of the western hemisphere are sold. For *a*, look up the figures in a reference book; for *b*, measure on a globe the distance of the mouth of each river from Europe. The Amazon has one great advantage over the St. Lawrence. What is it? In spite of this, not nearly so many large ships sail its waters as use the St. Lawrence. Why should this be so?

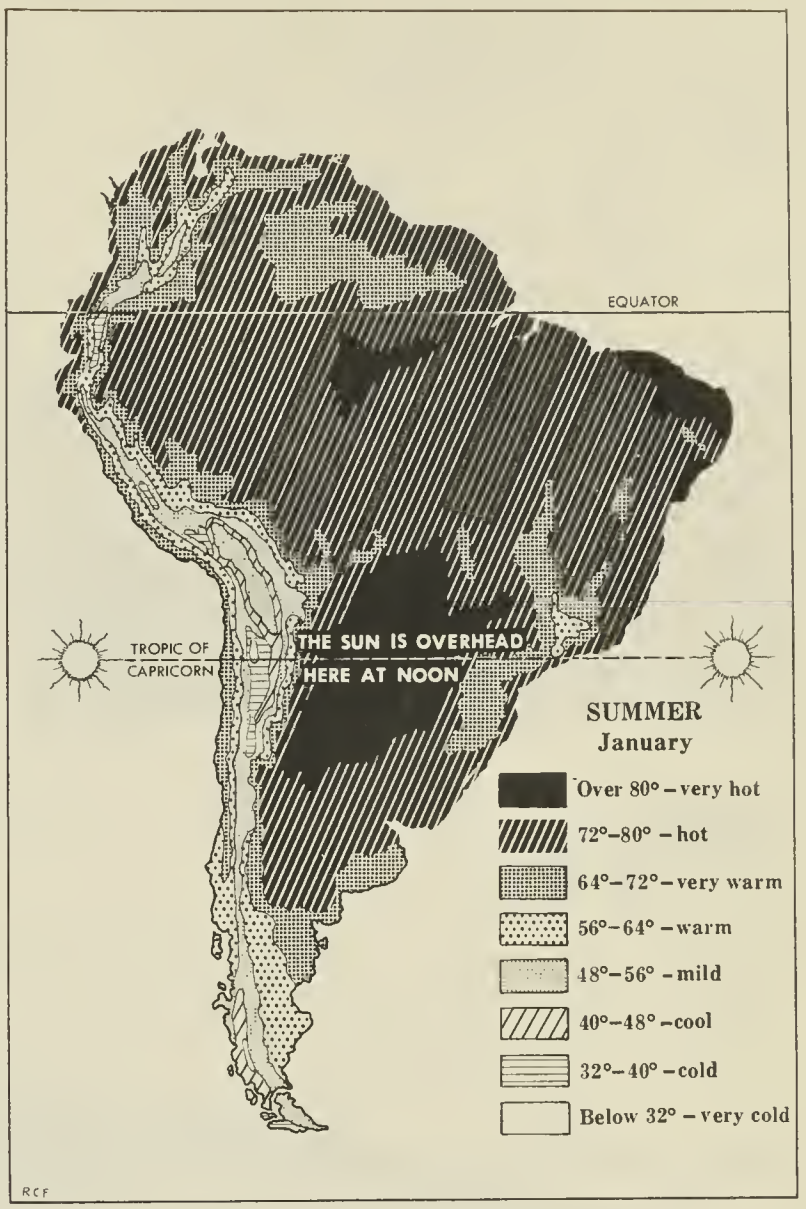
Water transportation is widely used on the Orinoco River.

Philip Gendreau, N. Y.





Average temperatures in winter.



Average temperatures in summer.

A TOPIC FOR DISCUSSION · It is sometimes said that the Amazon River is carrying away the Andes Mountains and laying them down beneath the waters of the Atlantic Ocean, roughly 3,000 miles away. Discuss this statement. Is it true?

THE CLIMATES OF SOUTH AMERICA

You will remember that climate means the weather, with its many changes, over a long period of time. It is wrong to speak of *the* climate of an area as large as South America, because places in different latitudes or at different heights above the sea have different climates.

Canada and South America · The southern boundary of the province of Quebec is 45° N. latitude, halfway between the north pole and the equator. The southern boundary of Western Canada is 49° N. latitude, and Southern Ontario is somewhat farther south. Trace the lines of 45° and 49° S. latitude where they cross South America. Are we likely to find the climate of South America like that of Canada? What will be the difference? Even among the mountains of South America where the temperature may be the same as that at home, we shall still find many differences.

Tropical climates · Three-fourths of South America lies between the tropics of Cancer and Capricorn.

You already know that between the tropics the noonday sun is always high, and is directly overhead twice during the year. You



The parts of the Americas within the tropics.

also know that the higher the sun is in the sky, the greater is the heat it gives. You know, too, that the sun is directly overhead at the equator in March and September, at the tropic of Cancer in June, and at the tropic of Capricorn in December.

From all this we can learn that the lowlands within the tropics are always hot, and that they are hottest about the time of year that the noonday sun is directly overhead. In some places the temperature may average about 80 degrees every day in the year. This tells you that there is never any winter, so that plants can grow out-of-doors at all seasons. There are none of the extreme changes of temperature so common in Canada.

Rainfall · Temperature is not all there is to climate. Precipitation, and in tropical South America that is usually in the form of rain, is also important. We have already read of rainfall, in the West Indies and in parts of Mexico, much heavier than that in most of Canada. Let us find out why this should be so.

Winds and calms · Most of you have been to a corn roast. Do you remember how you sat around the hot fire and watched the smoke and bits of half-burned leaves and twigs float upwards towards the sky? Someone called out, "Oh, my face is burning!" Someone else said, "Well, my back isn't. There's such a cold draught on it that it is all shivers."

Now this is what was happening. The fire heated the air around it. Hot air is lighter than cold air. The colder, heavier air crept in towards the fire and pushed up the warmer, lighter air. This movement continued as long as the fire burned.

Can you imagine a row of giant bonfires all the way around the earth at the equator? Hot air at the equator would be pushed up by the cooler air from either side, causing a draught. We call a draught along the earth's surface a wind.

Now instead of our imaginary bonfires, the direct rays of the sun provide the heat, but the result is the same. Look at diagram *B* on page 61. Where air is rising straight up, a person on the earth's surface feels no wind. Thus a belt of calms is found wherever air is rising.

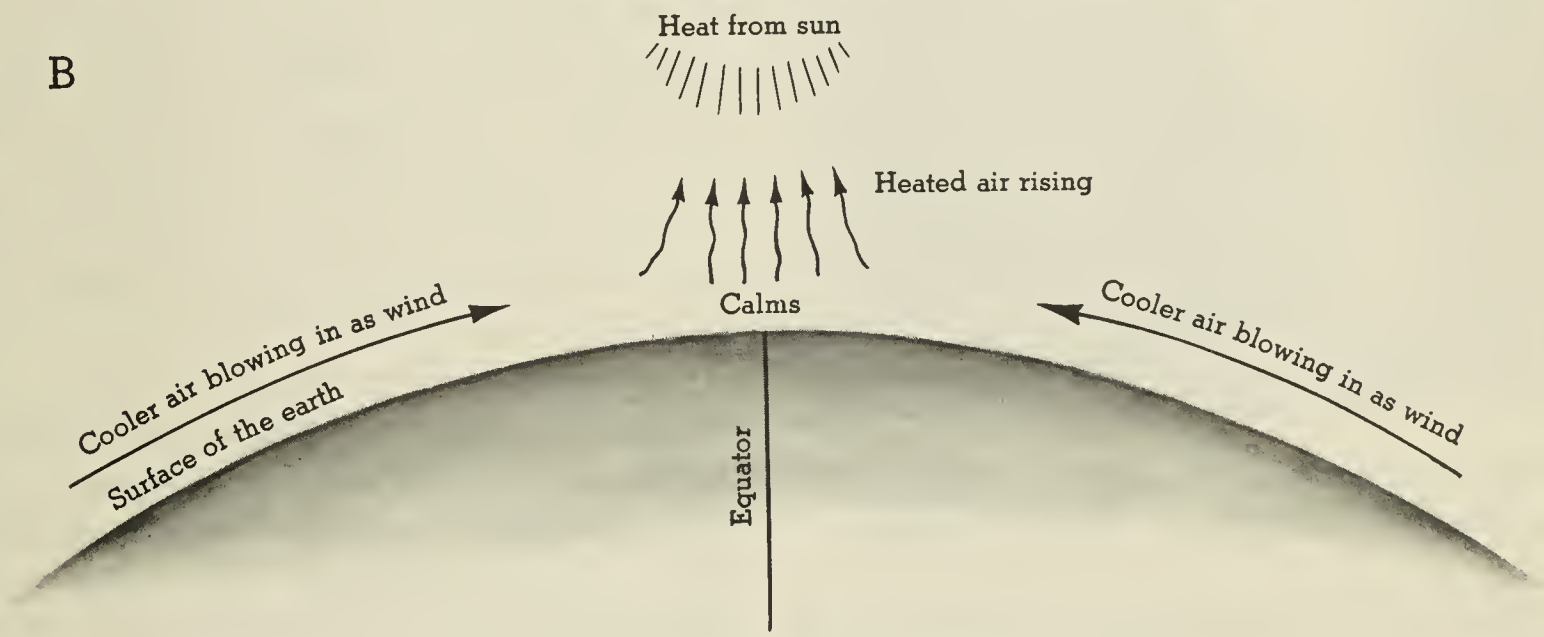
If we could look down from above, it would look like diagram *C* on page 61. But, as you know, our earth is always rotating on its axis. This movement turns aside the winds as they blow towards the equator, so that actually it would be like diagram *D* on page 61 (again looking down from above).

These winds which you see blowing towards the equator from the northeast and southeast are the northeast and southeast trades. You have already learned of the northeast trades in your study of the West

A

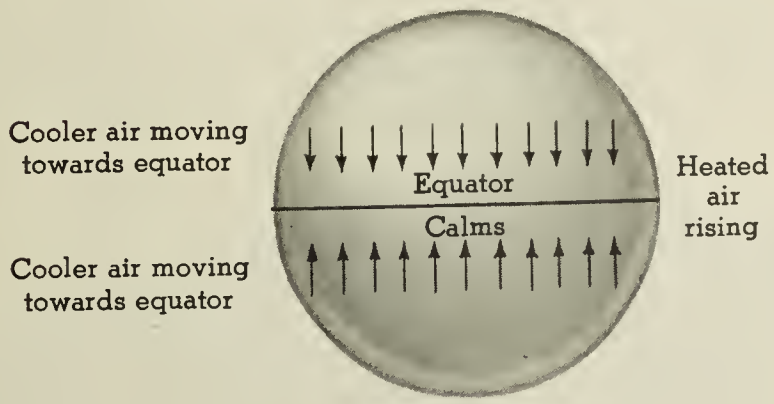


B



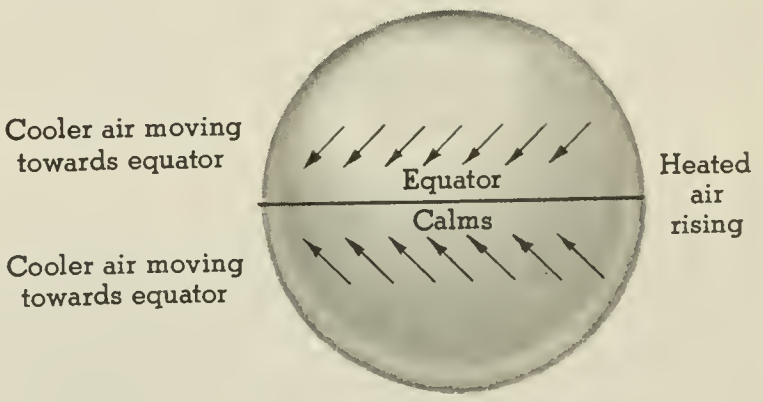
Looking along the earth's surface

C



Looking down on equator

D



Looking down on equator of rotating earth



When rain falls in South America. Winter is the time when the noon sun is low in the sky.

Indies, Mexico, and Central America. The belt of calms between the winds is called the *doldrums*.

Winds and rain · The map of South America on page 84 shows the amount of precipitation in the various regions. Find those parts which have the heaviest rainfall. Let us find out what causes such heavy rain.

You will remember that in British Columbia the westerly winds coming in from the Pacific Ocean drop some of their moisture as they rise to cross the Rocky Mountains. In southern Chile you will find exactly the same condition. In eastern Brazil, in western Colombia, and in the Guianas you will see that the winds, blowing in from the ocean, produce the same result.

The heavy rainfall over the Amazon is chiefly what is called *doldrum* or *equatorial rains*. Hot air can always hold more moisture than cold air. When the hot, moist air rises to higher, cooler regions, the moisture condenses, forming towering white clouds. When the drops of moisture which form clouds become too heavy, they fall as rain.

A day at the equator · An average day's weather at the equator is something like this. The morning begins with a clear sky and a hot sun. As the sun rises higher in the sky and the day gets hotter, clouds begin to form. By noon the sky is clouded over. In the afternoon distant thunder is heard, and rain begins to fall. The thunder gets louder, and there are flashes of lightning. Then the rain pours down. Water falls in torrents for hour after hour, drumming on the roofs of the houses. Finally the sky gradually clears as the clouds thin out. The sun shines again before it sets, and the evening is fine. Each day in the year is about the same. Things are always damp in the region of the equator, and the air is hot and full of moisture. Travellers tell us that what they dislike most about equatorial climate is its sameness—heat, rain, moisture, day after day, with no hope of change or improvement.

Wet season, dry season · North and south of the area where there are equatorial rains, the total amount of rainfall grows less. In the season when the noon sun is highest in the sky it rains heavily, but when the sun is lower there is a season with no rain. Even in the dry season, the heat is still great, and during this time grass withers, what few trees there are shed their leaves, streams dry up, and animals may die for lack of water.

Deserts · Look again at the map on page 84 and find those parts of South America which are very dry. The driest region lies in Peru and Chile, between the mountains and the Pacific Ocean. In Chile this region is

called the Atacama Desert. It is one of the driest regions on earth. There are two reasons to account for this. One is that during much of the year the winds are blowing from the continent and so are dry. The other reason is that a current of cold water, much like the Labrador Current on the Atlantic coast of Canada, flows northward along the coast of Chile and Peru. Find its name on the map on page 145. The cool air above it is warmed when it reaches the land and picks up any moisture it can find. Fog often blankets this coast in the early morning, but disappears when the sun heats the slopes of the mountains.

Patagonia is the other dry region, although, unlike the Atacama Desert, Patagonia is cool. Here again, the winds, this time from the west, have dropped much of their moisture on the other side of the Andes. In what part of Canada is there a similar dry area?



British Information Services

Heavy rainfall produces large trees and dense vegetation in British Guiana.

A PROBLEM · From the maps on page 59, find the temperature, roughly, of these cities in January and July: Buenos Aires, Rio de Janeiro, Belém, Barranquilla, Valparaiso, Lima. Arrange the temperature figures in two columns, one headed January and the other headed July. In a third column put the difference between the temperatures of the two months. Are the figures in the third column very different? In which month are the temperatures lowest?

SOMETHING TO FIND OUT · At what season of the year does most rain fall at these places: Manaus, Barranquilla, Rio de Janeiro, Valparaiso? See the map on page 62.

HOW CLIMATE AFFECTS PLANT LIFE

Vegetation of tropical lands · Plants need warmth and moisture in order to grow. In the deserts of South America there is warmth but not enough moisture, so few plants can grow. The vegetation map on page 64

The Atacama Desert is one of the driest regions in the world.





The vegetation of South America.

Wet and dry seasons produce grasslands with a few scattered trees and bushes.

Henricks Hodge, from Three Lions



shows that the "every-day-of-the-year" rainfall of the Amazon region supplies enough water for the growth of dense forests. Where besides in the Amazon Valley do you find equatorial forests? Does the map on page 84 show that these regions too have heavy rainfall? Later in the year we shall read about other equatorial forests like these, in Africa.

Savanna plants · Only special types of trees will stay alive during a long dry season, and so regions with rain for only a part of the year are usually grass-covered. Grasses can spring up, grow, put forth seeds and die within a few months. The roots and seeds remain in the ground during the dry season and sprout with the first rain. Tall, coarse grass then is the chief form of vegetation in those parts of the tropics where there is a wet and a dry season. These grasslands are often called savannas. In the valley of the Orinoco, as you have already learned, they are called llanos, and on the Plateau of Central Brazil they are called campos.

Vegetation of cooler lands · In Argentina there are other grasslands, very much like the Canadian prairies. These are the Pampa. Here the rains are not as heavy nor is the temperature as high as in the savannas, and so the grass is much shorter.

In the cooler parts of the continent where rain falls most of the year, there are forests rather like those in British Columbia. This is the case in southern Chile.

QUESTIONS TO BE ANSWERED · **1.** Why are the fence posts used on the Pampa ranches expensive?

2. Indians who live on the high plateaus of the Andes find it hard to keep warm. Why don't they build large fires?

3. Why are sugar and corn common crops of savanna lands, and bananas, cacao, and chicle of tropical forest regions?



Photograph courtesy Trans-Canada Air Lines

Off on the first lap of our flight to South America.

FLIGHT TO SOUTH AMERICA

Across the blue Caribbean · And now for South America! We shall go from Canada by air to Florida, and then, again by air, to Barranquilla in Colombia. Study the map on pages 6–7 to locate Barranquilla, and as we travel, follow the route we take. As we leave Florida, we cross the Straits of Florida, through which the Gulf Stream flows into the Atlantic Ocean. Then we fly above Cuba and Jamaica and across the Caribbean Sea, looking down on its waters so blue under the blue sky.

In time we see land ahead—our first glimpse of South America. The blue water has now become a muddy colour, and, as we near the shore, the mouth of a large river comes into view. It is the Magdalena River, which rises in the Andes more than a thousand miles to the south. The city of Barranquilla is situated on the banks of the river, about twelve miles from its mouth.

Landing in South America · Now the plane is flying low over the harbour of Barranquilla, and we can see several stern-wheel steamers, like those on the Mackenzie and the Yukon, and all sorts of ocean steamers, small boats, and barges. Beneath us is the city of Barranquilla, the sun blazing down on its white buildings and pavements. We catch glimpses of tall, modern buildings, beautiful old churches, and native houses with thatched roofs. Then our plane circles over the airport; it lands; and we set foot on South American soil.

THE COUNTRIES OF THE ANDES

COLOMBIA

A position of importance · Colombia has an important position in the western hemisphere. It is the only country in South America that has ports on both the Caribbean Sea and the Pacific Ocean. Notice also how near it is to the Panama Canal. It is easy to understand why the United States considers Colombia an important neighbour and why most of Colombia's trade is with that country.

Look at the curves and bulges along the eastern boundary of Colombia. Each one gives the country a valuable river outlet—in the southeast to the Amazon and to several of its tributaries, farther north to the Rio Negro, and then to the Orinoco. With all these river outlets to the east, and a shoreline on two oceans, Colombia's trade should prosper.

Colombia's Resources

Within Colombia's boundaries there are three lofty ranges of the Andes Mountains. Most of the people of the country live on stretches of level land among these mountains, particularly on the high plain around Bogotá and in the long basin, or high plain surrounded by mountains, which lies between the Central and Western Andes. Colombia also has wide lowlands along the Caribbean Sea, the Pacific Ocean, and the valleys of the Magdalena and the Cauca rivers.

Wealth in agriculture · Almost any crop can be grown somewhere within the country, because of the great differences in elevation and climate. In the hot lands along the coast, Negroes work on banana plantations like those in Central America. They also do most of the work on the sugar plantations farther inland.

On mountain slopes and in upland valleys Indians and Mestizos work on the many coffee haciendas, or on the small coffee *fincas*, producing Colombia's most important export. Colombian coffee has a fine, delicate flavour and brings the highest prices. Great care is taken to guard its quality. Banana plants or trees are planted between the rows of coffee shrubs to protect them from the direct rays of the sun.

Getting the coffee safely to the river highways is a problem. A few districts are served by railways; others have roads; in some places aerial railways carry the coffee down the mountain slopes; but much of the crop is carried on the backs of donkeys down difficult mountain trails.

Many useful products even grow wild. One of these products is the bark of the cinchona tree. It is found in the forests along the Caribbean coast and in the *Oriente*, that great, almost unknown country stretching from the slopes of the Eastern Andes to the Amazon. From the bark of the cinchona tree quinine is made. Quinine is one of the drugs used as a protection against the disease malaria.

In the Oriente, east of the Andes, lies untold wealth in forests, streams, and rocks. But little has been done towards developing its resources. Indians there still live as their ancestors lived before the coming of the Spaniards. Even today, many have never seen a white man, although most have seen planes flying overhead.

Wealth in livestock · Colombia has also much livestock. Herds of cattle feed on the long grass of the savannas, and cattle, sheep, and goats graze on the shorter grass of the highland pastures. These animals produce meat and dairy products, wool, and hides for home use and for export.



National Federation of Coffee Growers of Colombia

Spraying coffee shrubs. Why are there banana plants among the rows of coffee?



James Sawders

An aerial railway to bring coffee down from a mountain plantation.

Mineral wealth · Colombia is one of the great oil-producing countries of Latin America. Of particular interest to Canadians are the oil wells on the Magdalena River, which a Canadian company helped to develop. Oil is also produced farther north near Venezuela, and is carried across the mountains by pipe-lines to ports on the Caribbean Sea.

Near Bogotá emeralds are found—some of the finest emeralds in the world. There are salt mines near that city too, and visitors are surprised to find that they can drive right through the galleries of the mines, where electric lights show up the dazzling whiteness of the salt.

Gold and silver were mined in Colombia before the coming of the Spaniards, and gold is still an important export. Platinum, too, is mined in large enough quantities to make Colombia one of the world's three chief producers. (Canada and Russia are the other two.)

Manufactures · "Manufacturer" originally meant a person who makes things by hand. There are many such workers in Colombia. Even before the coming of the Spaniards, the native Indians were making their own ponchos and other woollen garments. Handmade woollen *ponchos* (blankets with a hole in the middle for the head to go through) are sold all over the country. Felt hats, worn by all mountain Indians, are often handmade. So are the so-called "Panama hats," which are woven from the fibre of the *toquilla palm*. From sisal and *figue*, another fibre plant, pack-sacks, sacks for coffee, and coarse sandals are made. From *coir*, the rough outside covering of coconuts, rope is made. From clay, pottery jars and bowls for use around the home are fashioned.

While these handicrafts are still carried on, particularly in the highlands, large-scale manufacturing is growing in importance. Such industry, producing textiles, cigars and cigarettes, chocolates, hats, matches, coffee sacks, and many other products, is found in the larger towns and cities, particularly where transportation routes make possible the movement of goods.



Henricks Hodge, from Three Lions

A stocking factory in Medellín—one of Colombia's modern industries.



Standard Oil Co. (N. J.), Photo by Collier

An oil pipeline in the Colombia forest. Note the great trees and thick vegetation.

Lack of fuel and electricity still hinders large-scale manufacturing. Luckily, the chief supplies of coal, although not large, are near the cities of Bogotá, Medellín, and Cali. Mountain streams will, in the future, provide electrical power, but at present few power plants have been built.

Another drawback to manufacturing has been the lack of enough roads and railways. Two good highways are in use, the Pan American Highway from the border of Panama to the border of Ecuador, and the Simón Bolívar Highway from Bogotá to the Venezuelan border. Railways are being built to connect Bogotá and Medellín with the Pacific port of Buenaventura. Steamboats, barges, smaller boats, and rafts bring produce down the Magdalena to Barranquilla, but the river is not good for shipping. During the dry season boats often run aground on sand bars. When the rains come, the river is a raging torrent, often a mile wide. Much of the freight is still carried by pack trains along trails which zig-zag up and down mountain slopes. Aeroplanes are used everywhere. Colombia was the first country in the world to have a commercial air service. But air transport is very expensive, and so the country must have better railways and roads before the transportation of goods can be easy and cheap enough to allow many factories to operate.

Cities of Colombia

Bogotá · Bogotá, the capital of Colombia, lies on a flat plain 8,600 feet above sea level. One-third of all the people of Colombia live on this plain, the Sabana de Bogotá.

Bogotá is a city of over half a million people. It has tall modern buildings, old churches, and red-tiled roofs like those we saw in Mexico. The city is spoken of as a cultural centre because painters, scholars, and musicians live and work there. Because of its height above the sea, the climate is cool and may be chilly even when the sun is shining. Some newcomers are apt to feel dizzy in the thin air.

Everywhere there are examples of the old and the new. Here is a university founded more than thirty years before Champlain founded Quebec; there, a most modern building that houses the Ministry of Educa-

tion. A visit to the shops reveals that Bogotá is an expensive place in which to live. Can you suggest a reason for this?

Medellín · Medellín is the second largest city of the country. It lies in the highlands above the Cauca Valley. Because it is much lower than Bogotá, it has a warmer climate, pleasant at almost any time of the year. The city is situated in the centre of the most important coffee-growing district, and many of its citizens are engaged in the coffee trade. There are also many factories. Like Bogotá, it is a cultural centre.

Cali · This city in the Cauca Valley was founded in 1536. It is lower than Medellín, and therefore hotter. It is a busy industrial city, serving the richest farming district of the country.

Barranquilla · Barranquilla, a city about as large as Hamilton, Ontario, lies on the Caribbean lowland, and our first impression on arriving there was oh, what heat! It reminded us of Veracruz in Mexico.

Barranquilla handles more than half of Colombia's foreign trade. The city has beautiful churches, modern buildings, and homes of different types. The streets throng with a great variety of peoples—Spaniards, Negroes, Indians, and many others. Spanish is the language most commonly heard. There are shops, of course, and factories, the products of which are sold mainly in Colombia. Open-air markets display heaps of fruits and vegetables, ponchos, hats, masses of bright flowers, and curious little figures cut from *tagua nuts*, sometimes called vegetable ivory. The same nuts are the source of many of our buttons. The trees bearing these nuts grow in many of the hot lowlands and river valleys of South America.

Buenaventura · This is one of the few well protected harbours on the Pacific coast of South America, and the only Pacific port of any importance in Colombia. It has up-to-



Pan American World Airways System

An air view of Bogotá.

date docks and loading machinery, and since railways were built to it, it has grown rapidly. Coffee, gold, platinum, sugar, and hides are shipped from its wharves.

Cartagena · Cartagena is the oldest city in Colombia. The entrance to its harbour is by a narrow, winding channel, guarded by ancient Spanish forts. A canal and a railway now connect the city with the Magdalena River. These have brought more trade to the ancient city, and modern office buildings and homes are spreading beyond the old city walls.

ECUADOR

A small but amazing country · Ecuador is smaller in area than any of the Canadian provinces except the Maritimes, and has a population about equal to that of the province of Quebec. It has three distinct regions,

River boats in Barranquilla harbour.

James Sawders





Courtesy of Grace Line

Snow covers the peak of Mount Chimborazo, almost four miles high.

like Colombia, but in Ecuador the Andes are, on the whole, higher, and instead of three north-south ranges, there are only two. These two are closer together, so that the mountain basins are narrow. Among the mountains in Ecuador, there are more than twenty active volcanoes, including the world's highest, Cotopaxi.

The name, Ecuador, means "equator," and a glance at the map will show you that the equator crosses the northern part of the country. The great variety of elevation, however, produces amazing differences of climate, vegetation, and living conditions within the boundaries of this small Andean country.

Bananas grown on the hot coastal lowlands are shipped from Guayaquil.

Courtesy of Grace Line



Many Kinds of Climate

As you know, temperature in Ecuador depends upon elevation, and differences in elevation are very great in this country. The coastal plains have a hot, tropical climate. As you go up into the mountains, the weather becomes cooler. In Quito the days are cool and the nights chilly. Higher still, the peaks of the mountains are snow-covered the year round.

From north to south, particularly along the coastal lowlands, there are great differences in the amount of rainfall. In the north it rains almost every day in the year, the daily rains of the doldrums. Farther south there is a rainy season from November to May, when this region receives heavy equatorial rains, and from June to October there is a dry season, when the trade winds blow across the region. Still farther south, the dry season becomes longer.

These differences in the amount of rainfall result in differences in vegetation. In the north are dense forests and other rich growth. Farther south, as the dry season becomes longer and longer, the forests give way to grasslands, and the grasslands to *scrub* (low bushes often bearing thorns) and more desert-like vegetation.

Two Very Different Cities

Quito · The city lies in a narrow basin, or pocket, among the mountains. It is one of the most remarkable cities in the world, and one of the most beautiful.

Quito was a capital city long before the coming of the Spaniards. Today, with almost a quarter of a million people, it is still a proud and growing city. Throngs of donkeys, automobiles, and people make a real traffic problem in the city's streets, which are narrow and paved with cobblestones.

Overhead, bells ring out from the steeples of the many beautiful churches. There are stores, a museum, a theatre, and gardens, not with the tropical flowers we might expect near the equator, but with hardy plants more like those in Vancouver and Victoria. The air in Quito, high in the mountains, is chilly the year round. There is plenty of rain. Nearly every day clouds gather in the sky and the rain falls for a few hours.

A trip to the equator · Let us take a bus trip from Quito to the equator. For fifteen miles we enjoy beautiful views of mountain scenery, since the rain is over for the day and the clouds have lifted. Soon we are out of the bus and crowding around to "see" the equator. There it is, a marker with this inscription, 0° 0′ 0″. How would you read what it says? We take our turn standing with one foot in the northern hemisphere and one in the southern. Our ideas of the equator as a place of great heat are shattered. So high above sea level the air is chilly. We turn up our coat collars and are glad to get back into the bus.

As we near the city on our return, the sun sinks beyond the western mountains. We look at our watches. It is only six o'clock. Suddenly it is dark! This, we are told, is the sudden dark of the tropics. There is no twilight as at home. The days are almost the same length all year round, and the weather, too, changes very little from month to month.

Guayaquil · Guayaquil lies thirty miles up the Guayas River, on the coastal plains of Ecuador. Here is a heavy, moist heat, like that of Barranquilla. Up in Quito the thermometer may be registering 42 degrees, while in Guayaquil it stands at 92 degrees. As you know, lands nearer sea level are warmer than those high in the mountains in the same latitude.

Guayaquil is a city about the size of Winnipeg. Its wharves are busy places



James Sawders

Sorting cacao beans in Guayaquil.

where cacao and coffee beans in sacks are piled ready for shipping. Along some streets cacao beans can be seen spread out to dry in the hot sun. Cacao trees grow to be about twenty-five feet high, and bear pods the size of a fist on their trunks. These pods are cut off most carefully and opened by hand. The seeds are removed and placed in a warm, closed room to ferment. Then they

Quito, a city set high in the mountains.

James Sawders





The northwestern part of South America.

are dried in the hot sun. The dried beans are a bright red, but under the skin is the familiar colour of cocoa, from which chocolate is made.

The People of Ecuador

Over half the people of Ecuador are pure-blooded Indians. The rest of the population is made up largely of Mestizos, people of Spanish descent, and Negroes.

Products of Highlands and Plains

Products of the coastal lowlands · The crops are much like those in Colombia. Cacao and bananas are the chief cash crops. Panama hats are another important export. The toquilla palms, from which, as you know, the hats are made, grow on the lowlands, but much of the weaving is done in the highlands. Rice is becoming an important export, too.

Along the coast *mangrove swamps* are common. Mangrove trees are found along low-lying tropical coasts. They grow close together and at low tide the roots stand high above the water in a thick tangle. Soil washed in by the tide is caught in among the roots, forming swampy land. From the red mangrove a substance called *tannin* is obtained. This is used in tanning the hides of Ecuador's cattle to make shoes for Ecuador's people.

On the peninsula west of Guayaquil salt, sulphur, and oil are obtained. The oil field was once operated by a branch of a Canadian company. Some of the oil is refined for use in the country, and some is exported.

Products of the highlands · As you know, most of the people in Ecuador live high above sea level. They make their living much as do the highland dwellers of Colombia, growing crops like those grown in northern countries, and herding cattle, sheep, and goats.

In the highlands of Ecuador we see for the first time the llama, sometimes called the "camel of the Andes." It is not nearly so large as the camel, but like it, it can be trained to carry a load over long distances. The llama's long hair is used to make carpets and woollen garments.

The Oriente of Ecuador

This part of Ecuador is still largely unknown, and is much like the nearby part of Colombia. It forms a large part of the country and has great wealth in its forests. Few people live here: most of those who do are pure-blooded Indians. They are very dif-



James Sawders

Goods are often transported by llama pack trains in the Andean countries.

ferent both physically and mentally from the proud descendants of the Incas who live in the highlands.

Canada's Trade with Ecuador

Like Colombia, Ecuador trades chiefly with the United States, but Canadian goods are becoming better known all the time. Among the goods which Ecuador buys from Canada are foodstuffs which either cannot be grown in the country or cannot be produced in large enough quantities. These are wheat and flour, oatmeal, and canned goods. Then there are all sorts of goods which the people of Ecuador are not yet ready to make for themselves. Some of these are textiles, paper, and many things made of paper, leather goods, farming and mining machinery, electrical goods, drugs, and chemicals.

To pay for these imports, Ecuador sends us cacao beans, bananas, coffee, cabinet woods, tagua nuts, Panama hats, pepper, and *kapok*. Kapok comes from the silk cotton, or *ceiba* tree. It is used chiefly for cushion filling, for life preservers, and for sleeping bags used by arctic travellers.

PERU

AN INTRODUCTION THROUGH MAPS · Let us look at the maps on pages 72 and 125, to see what we can find out about Peru.

1. The most northerly tip of Peru is just south of the equator. What is the latitude of the most southerly part of Peru? If each degree of latitude is equal roughly to seventy miles, what is the length of Peru in miles?

2. How many other countries touch Peru? Notice the small part of Colombia which thrusts southwards between Peru and Brazil to reach

the Amazon. Can you suggest a good reason why Colombians fought to gain this bit of land?

3. The Amazon crosses northeastern Peru. Find the port of Iquitos. It is about 2,300 miles from the Atlantic, but large river steamers and some small ocean vessels can reach its wharves.

4. Like Colombia and Ecuador, Peru has three physical regions—the coastal plain, mountains, and the region east of the Andes. Study the population map on page 46. How does the population of the highlands compare with that of the coastal plain? Why are they so different?

5. Locate Lake Titicaca. What other country shares this lake with Peru? This is the largest lake in South America. It is 12,500 feet above sea level. The first steamboat to operate on this lake was built in Scotland and shipped to Mollendo in sections which could be taken up the mountains and joined together ready for navigation. A steamship line now carries passengers across the lake from Peru to Bolivia.

Agriculture in Peru

In the coastal valleys · As we learned in our study of Ecuador, rainfall along the coastal plain becomes less and less as you go south from the equator, and the vegetation becomes poorer, until it is mostly scrub and desert plants. By the time the border of Peru is reached, there is real desert, stretching twenty-five to fifty miles wide for over 2,000 miles along the coast. Not a leaf, nor a blade of grass is to be found, except where streams cross the desert on their way from the snow-capped Andes to the Pacific. From the air these watered valleys look like ribbons of green across the yellows and browns of the desert.

More than three-quarters of the people of Peru make their living by farming or stock-raising, and more than half the crops raised come from these coastal valleys. The two chief export crops are cotton and sugar, grown mostly on large haciendas. Rice is grown, but not enough to supply the needs of the country. Vegetables are raised, and some are sent to the highlands. Fruits, which grow well under bright sunshine if water is supplied by irrigation, are widely cultivated. Coffee is raised in some of the higher valleys of the coastal region.

In the highlands · Wheat, barley, and *quinoa*, a cereal which is made into porridge or thin bread, are important highland crops. Po-

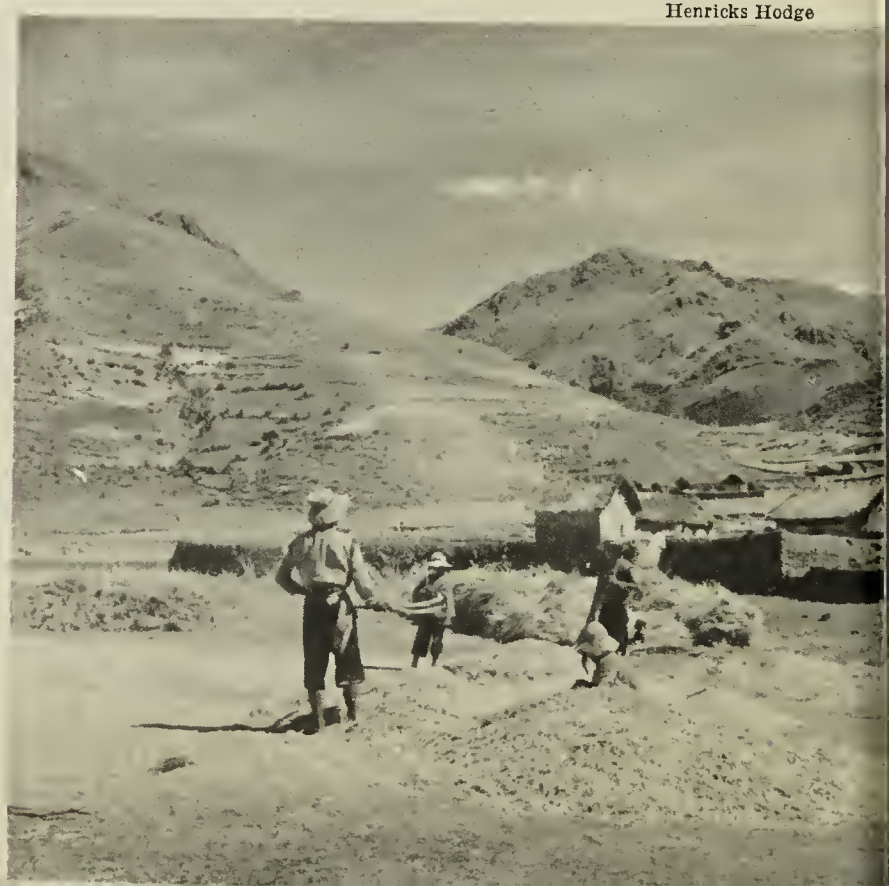
An Indian boatman takes some tourists for a sail in a balsa boat on Lake Titicaca.

Courtesy of Grace Line



Winnowing wheat on a farm in the Andes, using simple tools and methods.

Henricks Hodge



tatoes are the most important of all food crops. Corn is grown on the lower slopes. Fruits the same as those grown in Canada —apples, plums, peaches, pears, raspberries, and blackberries—are raised in sheltered valleys. The coastal settlements get their cereal supplies from the highlands.

Most of the livestock of Peru are found in the highlands. Sheep, cattle, and alpacas are raised in large numbers. Sheep are most common in the Aréquipa district. Alpacas provide a beautiful soft wool. Wool is also obtained from llamas and goats. The highlands provide the coastal region with meat, butter, and wool. Wool is also exported.

In the Montaña · This is the name given in Peru to the mountain slopes and wet valleys east of the Andes. The eastern Montaña is said to be Peru's "Land of Tomorrow." Agriculture is being encouraged here to provide food for the highland region and to add to the food of the crowded sections of the coastal plain. Tea, coffee, tobacco, oranges, melons, and bananas are important crops. One cash crop grown here, about which we have not yet heard, is *coca*. Many natives of Peru, particularly those of the highlands, chew leaves of this shrub as we North Americans chew gum. Coca is exported for use in the manufacture of *cocaine*, a drug used to deaden pain.

Wealth of the Forests

The products of the vast eastern forests are much like those of other tropical forests we have visited. Some of the most important are cabinet woods, dye woods, tagua nuts, cinchona bark, kapok, rubber, and materials used in making medicines and insect poisons. Because of its great navigable rivers draining into the Amazon, Peru is able to ship out the products of its eastern forests. Most of these



James Sawders

An oil refinery at Talara, in the barren and sandy desert of Peru.

products go out through the port of Iquitos. Some find their way to Canada.

Peru's Mineral Wealth

Petroleum · Oil is one of the important sources of Peru's wealth. Some oil fields in the desert have been worked for years. Those near the port of Talara are of particular interest to Canadians, since they were developed by Canadians.

Let us take a plane ride over these desert oil wells. At first nothing is to be seen but the dry, brown desert and the sea. Then a settlement set in the sand comes into view. In the clear air it is easy to see the oil storage tanks, the thousands of derricks, evenly spaced, and the roads and pipelines, like long ribbons, leading across the desert to the refinery at Talara.

"To produce oil in the desert," our guide tells us, "fresh water had to be brought in from mountain streams. Electricity to supply light and power had to be provided. Houses, stores, a hospital, churches, had to be built, and a swimming pool and other means of recreation were provided for the workers. At Talara, docks and piers, as well as a refinery, were built. Most of the crude



Three Lions

Lima, the capital of Peru.

oil is shipped to North America and Europe, but enough is refined to supply the needs of the country."

"Is it very hot down there?" someone asks.

"Not as hot as you would think," our guide replies, "although we are only about five degrees from the equator. Usually there is a breeze from the ocean during the day. The nights are often quite cool. You have heard, I know, of the trade winds, which blow from the east. In crossing the continent and climbing the mountains, these winds lose most of the moisture which they gathered from the Atlantic Ocean. This means that the air flowing down from the Andes is dry. Then, too, a cold current of water from the far south flows northward along the coast of South America. It is called the Peruvian Current. As with the Labrador Current off the eastern coast of Canada, it chills the air above it and causes fogs. Since Peru is nearer the equator than eastern Canada is, the heat of the sun evaporates the morning fog, and rain seldom falls."

Another oil deposit, possibly greater still than that on the desert, has been discovered in the Montaña near the Ucayali River.

Metals and other minerals · In the highlands Peru has untold wealth beneath the ground. Gold and silver have been mined since the days of the Incas. Copper, lead, and zinc are mined in several places. Some of the lead is sent to Canada. Peru provides almost half the world's supply of *vanadium*, which is used to toughen steel, and more *bismuth* than any other country in the world. Bismuth is a metallic substance used chiefly for medicine. Some coal is mined, and iron deposits are mined to produce steel.

Peru's Fishing Grounds

The Peruvian Current which flows from the far south along the coast of Peru, carries in its cold waters an abundance of food that attracts both fish and birds which feed on fish. This gives Peru valuable fishing grounds like our Newfoundland Banks.

The Cities of Peru

Lima · Lima, the capital of Peru and its largest city, is set in a lovely green valley. It is a different world from the glaring, barren rocks and sand of the surrounding desert plain. Yet every tree, every flower and grass plot in the city, and every great cotton and sugar hacienda in the valley behind it, owes its life to water from the snows of the Andes. It rarely rains in Lima.

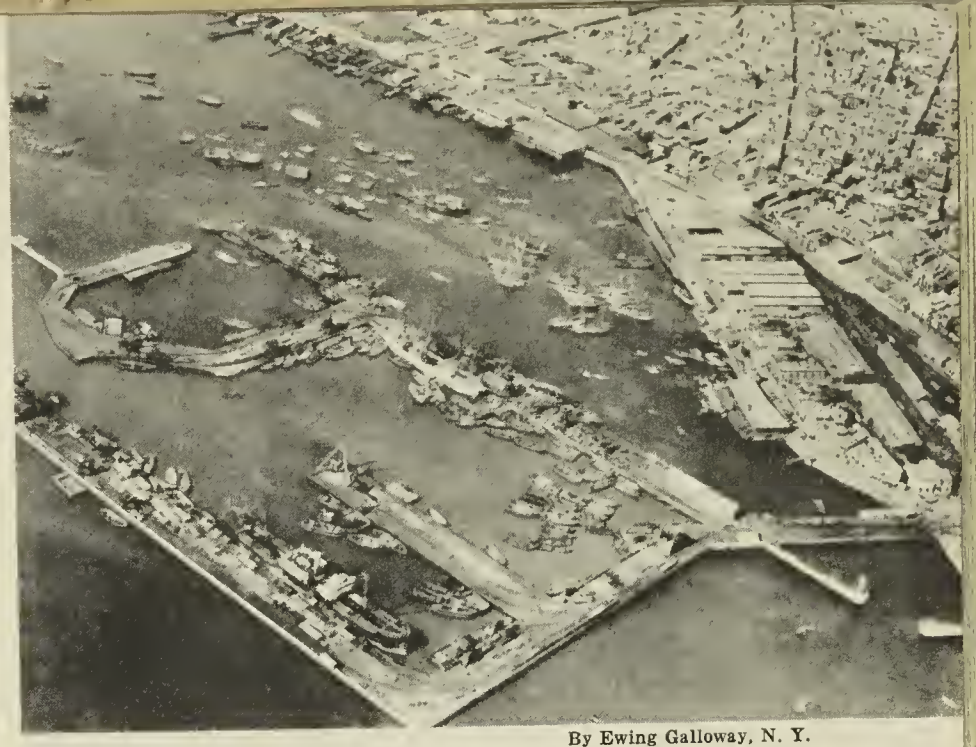
Lima was founded by Pizarro in 1535, the year Jacques Cartier first sailed up the St. Lawrence River, and boasts of having the oldest university in the western hemisphere. The city has many beautiful buildings, both old and new. Modern additions are made to look as much as possible like the buildings of four hundred years ago. As well as being the political and cultural centre of the country, it is also a manufacturing city. The making of textiles is the most important industry.

Cotton and sugar haciendas near Lima · Let us visit a cotton and a sugar hacienda. The cotton plantation, we learn, has about a thousand acres of land. Water is brought to the fields through a network of small canals. The amount which may be used is controlled by the government, so that all plantations may get their fair share. The cotton is picked by hand, and is carried by trucks to a gin built beside the railway tracks leading to Lima. This part of Peru is particularly suitable for raising cotton. The dry air keeps down diseases and insect pests, and there is no danger of rain ruining the cotton bolls; lack of frost gives the plants longer life; and there is a railway to carry the cotton to the mills of Lima and to the coast for export.

The sugar hacienda which we visit lies to the north of Lima. It is much larger than the cotton hacienda we have just seen, and has many more workers, over 1,000 in all. Here, too, a network of irrigation ditches brings water to the crop. Six crops can be harvested from one planting; after that, the yield drops off so much that the fields must be planted again. There is never any frost to kill the canes. Tramways throughout the fields carry the canes to the hacienda railway, which in turn carries them to the mill. The mill is built beside the road and railway to the coast, and the raw sugar can thus easily be shipped abroad.

Callao · The port of Callao is one of the best on the Pacific coast of South America. It does not have a good natural harbour, but ships are safe behind the long *mole*, or breakwater, which has been built. Large warehouses and the most modern equipment attract many ships to its docks. Callao is the port for the city of Lima.

Callao, like many of the cities of western South America, has twice been laid in ruins by earthquakes. Such a disaster may happen again.



By Ewing Galloway, N. Y.

Ships of all kinds and sizes crowd the busy harbour of Callao.

As you learned in Chapter V, the Andes are "young" mountains and are still growing. As the crust, or outer layer of the earth, bends in the folding process, this moving about is felt on the earth's surface, where it is called an earthquake. *Tremors*, or shaking, can be felt hundreds of miles from the centre of the earthquake.

Arequipa · This city is set high in the mountains east of the coastal plain. It is a busy city, with important woollen mills, and is the second most important manufacturing centre of the country.

Mollendo and Matarani · Mollendo was once the port for Arequipa, but it does not have

Irrigation supplies water for the sugar crop and the sheep on this hacienda.

C.I.A.A. Photo





The Pan American Highway and its main branches.

a good natural harbour. This need is being supplied now by the new and modern port of Matarani, nine miles away. Wool is the leading export.

Peru's Transportation Problems

Difficulties to be overcome · With a desert stretching 1,400 miles along the coast, one of the highest mountain ranges in the world down the middle of the country, and a great region of tropical forest to the east, the people of Peru, who, even today, number only 8,000,000, face a serious transportation problem. Let us see what they have done to meet it, with the aid of several foreign companies who were interested chiefly in the minerals of the country.

Railways · First a railway was built from Lima and Callao to the great mining towns of the highlands. This is one of the most remarkable railways in the world, with forty-one bridges and sixty-one tunnels in the course of a hundred miles. It climbs more than 15,000 feet above sea level. In addition, several short railway lines bring the produce of the irrigated river valleys to sea ports at the river mouth. A line through Arequipa runs to Lake Titicaca. There is still no north-south railway, and the coastal valley cities must depend on roads and shipping.

Roads · Roads are being built in many directions. The Pan American Highway runs the length of the coastal plain from Ecuador to Chile. A most remarkable highway across the Andes connects Lima and Callao with the new oil field on the Ucayali River. This very important road is opening up the Montaña, enabling people to transport fresh vegetables and other products to the cities of the plains. Another road connects the mining towns with Lake Titicaca, and follows the shores of the lake to the Chilean border. Still another road runs from the lake to the coast at Mollendo.

Trace these roads and railways on the maps on this page and on page 100.

Airways · As in most of South America, airways are widely used to transport both passengers and freight.

The People of Peru

In Peru, as in Colombia and Ecuador, the people are descendants of native Indians, Spaniards, and the Negroes and Europeans who came later. Pure-blooded Indians make up more than half the population. The greater number of these live in the highlands. They are descendants of the Incas of whom we have already heard. Other Indians, less hardy than the Incas, live in the Montaña.

Most of the Mestizos, as well as the Spaniards and other people of European descent, live in the coastal valleys. Mestizos form about a third of the population.

Trade with Canada

Canada is not the leading nation in trade with Peru, but we do buy from that country minerals and tropical products which we cannot produce at home. In return we send to Peru a variety of goods, most of them manufactured.

It is interesting to see how some goods are shipped back and forth between two countries, sometimes several times. For instance, we import from Peru raw cotton, and we send back to Peru cotton goods. From Peru we get wool, and return the wide woollen belting called papermakers' felt, which is used in Peruvian paper mills. Those mills also use our pulp. From Peru's Montaña we get *cubé*. From this we make insect poisons, some of which we send back to Peru to protect the cotton plants from which we get some of our raw cotton. From Peru we get manila hemp, some of which we make into rope, cord, and fish nets to be used by Peruvian fishermen. Some of the fish caught in these nets are sent to us in tins.

These are only a few examples of the ways in which these two countries depend on one another, through exchange of goods.

BOLIVIA

Sitting on top of the world · This expression is not quite true of Bolivia, but certainly the country is "sitting on top" of South America, and is one of the highest countries in the world. It is also one of the two countries in South America without a seacoast. What is the other?

Canada has only one neighbour touching her boundaries. Bolivia has five. Which are



Courtesy of Grace Line

Ancient Indian trails are still in use today in the Andes.

they? Several of these nations are richer and stronger than Bolivia. All told, there are only about four million Bolivians, and their country is one of the most thinly populated in South America.

A map of Bolivia.





Fenno Jacobs, from Three Lions

A farm on the altiplano.

The Highlands of Bolivia

The highlands of Bolivia form only about one-third of the whole country, yet here most of the people live. A great basin, the largest of the many basins in the Andes, lies between the eastern and western ranges. This basin, which the Bolivians call the altiplano, or high plain, is about two miles above sea level. Towering above it, on either side, is the mountain wall with many peaks two miles higher still. Many peaks are volcanoes, some of which still smoke and steam.

Barren as the altiplano is, hardy crops can be grown on the northern part. The southern part is so dry that crops can be grown only where water from the mountains makes irrigation possible. There are few good roads on the altiplano. Rocky trails show the way Indians have travelled for centuries.

Weather of the highlands · High in the Andes the air is thin, and men and animals who have not spent their lives in these high regions find it impossible to work hard there. The climate is raw and cold. Icy winds blow across the stormy plateau and the treeless hillsides. The grass is thin and dry. How is it possible for people to work, or even to live, in such a region? Only a remarkable people could do it.

A highland Indian family of Bolivia.

Courtesy of Grace Line



People of the highlands · Most of the people of Bolivia have Indian blood in their veins, and in the highlands the greater number are pure-blooded Indians. These highland Indians are tremendously strong. Many live to a great old age. Most of them are farmers or herders. Some act as porters, carrying heavy loads over the mountain trails and down to the eastern valleys. Some work for a time in the tin or silver mines, but when they have earned a little money, they like to return to their farms. They help one another. Neighbours work together to plant all the farms of the community.

From his flocks of llamas, alpacas, and sheep, and from his patch of stony farmland, the Indian farmer somehow makes a living. Even by very hard work he can manage to grow only a few poor crops. Potatoes are

grown on most of the farms, but the best are no bigger than golf balls. One of the crops is barley, a grain brought from Europe centuries ago by the Spaniards. The farms are too high to allow corn to ripen, but there is some quinoa. If the highland Indian wants corn or sugar to eat, he must trade some of his wool or painted clay pottery with the people living in the valleys below.

Fuel is scarce in the highlands, since little or no wood grows anywhere, and there is no coal. Grass or a few twigs may be all the fuel that can be found. The children travel miles over the mountains in search of enough fuel for the cooking fires.

The Indian's beast of burden · Few animals can work at a height of two miles or more and with only poor grass as fodder. Fortunately the Indians have tamed the llama. Horses or mules used in the highlands may die of mountain sickness, but the small llama can keep on working. Some llamas are found even at a height of 17,000 feet.

Freight is carried across the Andean ranges and down the valleys by trains of llamas driven by Indians. The animals are so sure-footed that they can follow rocky trails which are too steep for men. Every year or so the animals are clipped for their wool. The Indians cannot afford to kill a llama, but when one dies its skin is used for shoe leather or to make a shirt or robe, and, if possible, the meat is eaten.

Mineral wealth in the highlands · Tin is the most important mineral of the highlands, and Bolivia is the most important source of it next to Malaya in Asia. Other important minerals mined on the eastern part of the mountains are copper, lead, tungsten, and antimony. If you are not sure of the uses of these metals, look them up in a reference book. Oil has also been found on the eastern slope of the Andes. This oil may bring future wealth to Bolivia.



Chief minerals of South A[illegible].

Cities of the highlands · *La Paz*, Bolivia's largest city, is the highest capital city in the world. It lies in a flat, rocky hollow high above sea level. In spite of its elevation, it is about the same size as Vancouver. About three-quarters of its people are pure-blooded Indians.

The scenery around La Paz is most remarkable. The city is approached by road or railway over a level plain surrounded on all sides by snow-clad mountains. Quite suddenly the road comes to the rim of a canyon, and there, 1,400 feet below, sheltered from the biting winds, is La Paz—a city with electric lights, buses and streetcars, and even a golf course!

The second largest city in Bolivia is *Cochabamba*. It is much lower than La Paz



Fenno Jacobs, from Three Lions

La Paz, highest capital city in the world.

and is therefore warmer. It is the centre of an agricultural district in the eastern Andes and is at the meeting of roads and railways running east to the Atlantic and west to the Pacific.

Farther south is the beautiful city of *Sucre*, the legal capital of Bolivia. The law courts are here, but La Paz is the actual seat of government.

Still farther south is *Potosí*, famous as an old silver-mining centre. Tin, mined near the city, is now more valuable than the silver.

Sorting lumps of ore in a Bolivian tin mine.

Black Star



Bolivia East of the Andes

Like the other Andean countries, Bolivia has a great area of mountain slopes and lowlands to the east. These stretch away to the valleys of the Amazon and Paraná rivers. To the north the slope is steep and cut into many deep valleys. This part, which extends as far south as Cochabamba, is called the *Yungas*. To the south, the slope is more gentle, and levels off into grassy plains.

The eastern lands make up two-thirds of the area of the whole country, but have few people. Their forests and grasslands could produce great wealth, but so far little is being done about it. Highland Indians and people from other lands find it difficult to remain long in the damp heat of the eastern valleys and lowlands.

The Yungas · The steep slopes and valleys of the Yungas, with their plentiful rainfall, provide the best agricultural land of Bolivia. Here vegetables and fruits are grown on terraces cut in the hillsides and are sent to La Paz and the altiplano. All crops grown in the Oriente of Colombia and Ecuador and the Montaña of Peru can be grown here. Coca is the most important cash crop of the region. Cinchona bark and rubber are also gathered from the forests.

The southern plains · These form a part of the Gran Chaco, a great area of grasslands shared, and sometimes fought over, by Bolivia, Paraguay, and Argentina. This large area is too dry for most of the crops grown in the Yungas. Its great wealth is oil. One of the richest deposits of oil in the world is believed to lie under these plains. Already wells have been sunk in three districts. Two are near the border of Brazil and one, the best known, is near the border of Argentina. The oil wells and refineries belong to the government of Bolivia, but Argentina and Brazil hope to share the oil.

Manufacturing in Bolivia

Very little large-scale manufacturing is carried on in Bolivia. Only a few of the most needed articles of food and clothing are produced. Most of the clothing of the highland Indians is made at home. Handicrafts of various kinds are common throughout the country. Lack of coal and shortage of skilled workers are two obstacles to manufacturing, and most of the people have not the money to buy factory-made goods.

Bolivia's Problem Number One

The greatest need of Bolivia is a better system of transportation. Railways have been built and are being extended. One line joins Arica, a port in northern Chile, with La Paz. One runs the length of the highland region from Lake Titicaca to the borders of Argentina. This gives an outlet to the sea by way of the Peruvian railway in the north and the Argentine railways in the south. Another from the Brazilian town of Corumbá reaches the eastern oil fields and is being extended to Santa Cruz. Trace all these lines on the maps on pages 79 and 100.

These railways were built at great cost and are kept up with difficulty. Because there are few people to use them, freight rates are very high. Trains do not run every day; some run only once a week. In spite of these difficulties, Bolivia must have railways to export the minerals which her people cannot use, and import the food which they cannot raise and the machinery and tools which they cannot manufacture.

Good roads are also scarce, although more are being built. One of the few roads across South America from the Atlantic to the Pacific passes through Bolivia, linking the roads of Brazil with those of Peru and Chile.

Much travel in Bolivia is done by plane, but this is by no means a cheap way of getting about, and airline operations at such great heights may be difficult.

In spite of all these obstacles to transportation, Bolivia has the good fortune to have outlets to both the Atlantic and the Pacific Ocean.



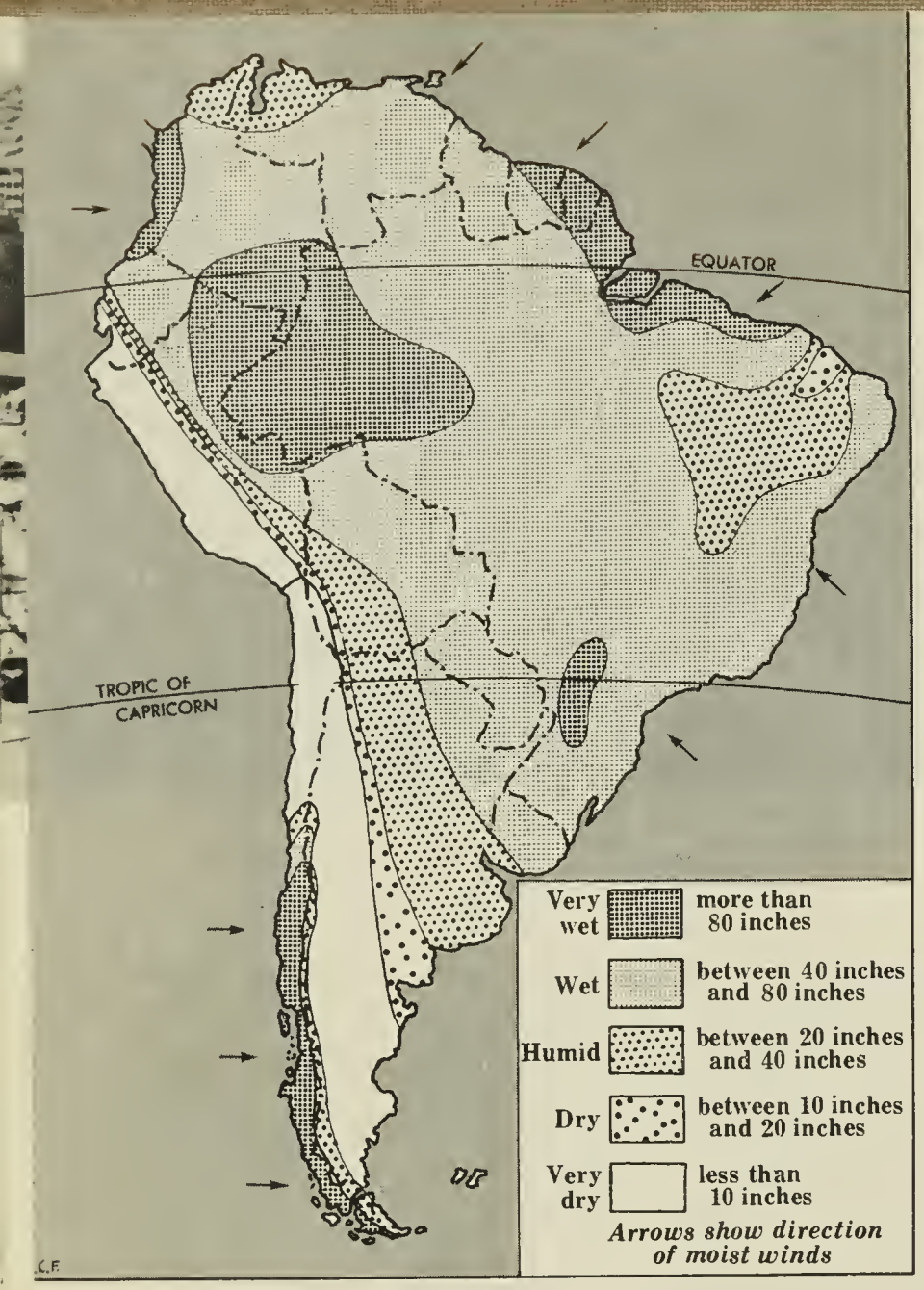
Kurt Severn, from Three Lions

A terraced coca plantation in the Yungas.

Building roads and railways through the mountains of Bolivia is difficult.

Three Lions





Average annual rainfall in South America.

CHILE

A long, thin land · Find Chile on the map on page 125. Look how long it is! From Arica, on the Peruvian border, to its southern tip in Tierra del Fuego, it stretches for roughly 2,800 miles. If Chile were stretched out between the same latitudes in North America, it would extend from British Honduras all the way to Hudson Bay. This very long country is also very narrow. In some places it is only fifty miles wide, a long, narrow land, between the high Andes and the Pacific Ocean.

The northern coast of Chile is high and unbroken. From Arica it stretches southward for 600 miles like an almost continuous wall facing the Pacific. In all that distance, only one river reaches the sea. There are many ports, to be sure, but most of these are small and unprotected. Only small boats can unload at their docks. Larger boats must anchor offshore, and unload their cargo into smaller boats, or *lighters*. The extra loading and unloading adds to the cost of imports and reduces profits from exports.

There are three natural divisions in Chile —the North, the Central Valley, and Southern Chile.

The North

The Atacama Desert · In Chile the continuation of the great Peruvian desert is called Atacama. The Atacama Desert is even drier than the desert of Peru. Much of this region never has rain, while the rest has only a shower once every ten or fifteen years. You must wonder why people live in such a place. The answer is minerals. Some men will live almost anywhere if they can find profitable work.

Nitrates · Here and there in the desert for a north-south distance of about 450 miles, nitrates are found in the rocks. The layer in which the nitrate ore, or *caliche*, is found, is buried under layers of useless rock and sand. To mine caliche explosives are used to blast and break up the rock, which is then scooped up by huge shovels and taken in cars by an electric train to the *oficina*, or mill. There it is crushed and put into tanks of boiling water to dissolve the nitrate. The water is later evaporated, leaving the nitrate in crystals. When these are dried, the nitrate is put in bags, made in Chile from Chilean sisal hemp or from *jute*, a fibre which is imported from India. It is then ready for export. Some of this nitrate goes to Canada, where it is used in making fertilizer and explosives. Much of the nitrate is not bagged, but is poured loose into the hold of the ship, as is done with Canadian wheat. Can you

suggest what difference this makes in the price?

When minerals are refined, useful substances are left behind. Often these *by-products*, as these substances are called, can be saved and put to use. Iodine is a valuable by-product obtained by refining caliche. Most of the world's supply of this drug comes from Chile.

Because nothing will grow in the desert, everything needed by the nitrate workers must be brought in. The desert supplies nothing but the nitrate rock.

At one time all the nitrate needed in the world came from Chile. Sailing ships braved the storms of Cape Horn to carry it to Europe. Since that time ways have been found to use the nitrogen in the air to manufacture fertilizer, and today the demand for natural nitrate is much less than formerly. Fewer ships go to Chile for nitrate, and hardly any of them go around the Horn. Can you tell why this is so?

Nitrate is shipped from several ports. Iquique is one of the most important. When the demand for nitrate is good, Iquique is a busy place; when sales drop, the port is almost deserted. If people living in other parts of the world do not continue to buy nitrate from Chile, the oficinas will close down, and Iquique and the other nitrate ports will be abandoned.

Copper · Copper has been mined in the Andes Mountains of Chile for more than 300 years. Today there are modern mines very high in the mountain valleys, from which bars of copper are shipped to the seacoast for export to Europe and North America. What is said to be the world's largest copper mine is found at Chuquicamata in Northern Chile. Chile is the second largest copper exporter in the world, and this mineral provides almost half the value of the country's exports.



Photo by W. W. Atwood

Mining nitrate. Caliche being loaded onto a train to be taken to the oficina.

Other minerals · Iron, coal, manganese, sulphur, and salt are also mined in the dry northern region of Chile, mostly by companies from North America and Europe. Most of the copper and manganese, much of the sulphur, and some of the iron are shipped away. Chile could supply the whole world with salt, but salt is heavy and sells for so little that it does not pay to ship it.

Antofagasta, chief city of the North · Antofagasta is the chief commercial centre of northern Chile. From its busy docks nitrate from the desert and copper bars from the highland mines are shipped, as well as tin from Bolivia, and many other products. Food, drugs, and machinery come to it from other countries for the people of the desert and highlands and for Bolivia.

A copper mine in Northern Chile.

By Ewing Galloway, N. Y.



The city is a pleasant place, with parks and gardens. Every drop of water used must be brought in by pipes for a distance of nearly 200 miles. Not only water, but food, clothes, machinery, everything, has to be brought into the city. A little manufacturing is done there, as well as some refining, but the chief work of its citizens is buying, selling, and shipping goods. Trains leave the port for Bolivia, for Valparaiso, and for Argentina.

The Central Valley

The desert and dry lands of Chile extend southward as far as Coquimbo. Of course, there is not a sharp line between the desert and the fertile farmland, but south of Coquimbo there is more and more rainfall. Here begins the Central Valley, which lies between the Andes and the Coastal Range, and stretches from Coquimbo 500 miles southward. It is a region of winter rain and summer drought, a region of orchards and vineyards, mostly under irrigation, a region of alfalfa, wheat, and barley, of herds of cattle and flocks of sheep and goats which graze on the higher ground. Most of the industries of Chile are located in this valley, and over three-quarters of all the people live in this lovely land. Here, too, are the large haciendas, some having thousands of acres. Many of these are now being divided into smaller farms.

Valparaiso · The first sight of Valparaiso should always be from the sea. As your ship approaches the harbour, the largest on the Pacific coast of Latin America, it steams past a naval base and a drydock, past a great protecting mole, and into the main harbour basin. Around about, a circle of hills encloses the blue bay glittering in the bright sunshine. Warehouses and business blocks cover the only level land. The rest of the city rises step by step around the circle of hills. Behind all are the Andes, their highest peaks white with snow. This is Valparaiso—Vale of Paradise.

The city is less Spanish in appearance than most of the older cities of Latin America. Earthquakes, storms, and fire have destroyed the old city, except for a small part of the downtown area, and most of the city is modern.

In the eastern part of the city are foundries, tanneries, flour mills, and factories making textiles, shoes, paints, and chemicals. At the suburb Viña del Mar, a famous seaside resort, there is a large refinery using raw sugar from Peru.

Santiago · Santiago, the capital city of Chile, is ninety miles by road from Valparaiso. It is set on a high level plain backed by the Andes. The city has a population of over a million, and is one of the four largest cities in South America. It does more than half the manufacturing of the whole country. Its people originally came from many lands—the British Isles, the United States, Germany, and Italy, as well as Spain.

The snowy peaks of the Andes form a beautiful background for the city of Santiago.

Courtesy of Grace Line



Southern Chile

That part of Chile from Concepción to the most southerly part of the continent in Tierra del Fuego, may be called Southern Chile. Let us take a look at this part of the country on the map.

SOME MAP WORK · 1. Study the map on page 93. The northern part of Chile has a smooth coastline. Find the Gulf of Corcovado, in about latitude 42° S. It marks the end of the unbroken coastline. How would you describe the coast south of this gulf? Of what part of Canada does it remind you?

2. Turn to the map on page 11. What is the direction of the winds in Southern Chile? On a map of the world, or on a globe, notice the tremendous stretch of water over which these winds blow before reaching the coast of South America. Sometimes they are called the "Roaring Forties." Notice the latitude of this part of Chile and see if you can give a reason for this name. These winds bring violent storms to the whole southwest coast of Chile. On the map find Cape Horn at the extreme south. In the days of sailing ships "rounding the Horn" was dreaded by all sailors. Since 1914 few ships use the route around the Horn. Why? How do the winds of Southern Chile differ in direction from those in the north?

3. Look at the map on page 84. Compare the amount of rainfall in the north, central, and southern parts of the country. The difference is remarkable, isn't it? Now study the graphs on page 90. At what time of year does most of the rain fall at Valparaiso? at Valdivia? Remember that the southern summer is from November to May. Now write a paragraph about the climate of Southern Chile. You may add to it that in the extreme south the climate is most disagreeable, with heavy rain, sleet, and snow, strong winds, and little sunshine.

The divisions of Southern Chile · Southern Chile has two distinct sections: the Chilean Lakeland, from Concepción to Puerto Montt, and the extreme southern part of the country.



Compare the coastlines of British Columbia and Southern Chile.

The Chilean Lakeland · This is a region of great beauty. There are many lakes, both large and small, forests, green pastures, and always a background of snow-capped mountains.

Many Germans have settled here, for this land is like their homeland in many ways.

German settlers in Southern Chile build houses much like those of their old homeland.

James Sawders





Fenno Jacobs, from Three Lions

Southern Chile has rich pastures.

They are familiar with forests and know how to care for them. They also know how to care for tourists, and the Lakeland of Chile is becoming famous even beyond South America.

More recently settlers from the crowded parts of the Central Valley have come to make homes for themselves here, where people are few. Many of these pioneers were workers on the great haciendas. They wanted land of their own, but could not pay the high price always asked for irrigated farmland.

Agriculture in the Chilean Lakeland · Since there is heavy rainfall and cool temperatures throughout Southern Chile, the crops grown are much like those produced in our Maritime Provinces—wheat, hay, oats, barley, flax, and potatoes. Fruits, such as apples, raspberries, cherries, plums, strawberries, currants, and blackberries, grow well. Green pastures provide food for great herds of cattle and flocks of sheep. Bees produce honey and wax.

The Far South · The most southerly part of the mainland of Chile, and the Chilean part of the island of Tierra del Fuego do not provide a pleasant place in which to live. There is little level land, and most of the mountaintops are covered with snow the year round, while glaciers wind down their slopes. The climate is difficult, with little sunshine, strong winds, fog, and rain. Snow and sleet are common in winter.

Two different groups of people live in this dreary land. Descendants of British and other European peoples grow some barley, oats, and potatoes and tend flocks of sheep in sheltered valleys among the mountains. From these sheep come meat, wool, and skins for export.

Among the mountains are small isolated groups of Indians. Some are farmers or lumbermen; others, avoiding the white man's settlements, cling to the last "toe-hold" on the continent, living by fishing and hunting much as their ancestors lived before the arrival of the Spaniards.

Mining in Southern Chile · Even the minerals of Southern Chile are unlike those found farther north. Coal is the most important. Mines are worked at several places not far from Concepción, and both coal and iron are mined not far from Valdivia. Chile's coal is not of high quality, but there is enough for the country's present needs. Oil is produced in the extreme south, near the Strait of Magellan. Much of the oil is shipped to Uruguay.

Concepción · Concepción is the chief city of Southern Chile, and one of the four chief manufacturing centres of the country; Santiago, Valparaiso, and Valdivia are the other three. The city is built near the mouth of a river. Its port is an important naval base.

Not far from Concepción is a large new steel plant, using local coal and iron from mines near Coquimbo and Valdivia. This plant will supply many of Chile's needs. Other industries of Concepción and its port are flour milling and tanning, as well as the manufacture of cloth and shoes.

Valdivia · Only about half as large as Concepción, this city is still a busy industrial

centre, set in an area of rich pastures and farmlands. It has tanneries, and factories making shoes, furniture, and other wood products.

Puerto Montt · Puerto Montt is the southern terminus of the railway which runs all the way from the border of Peru. Its position at the head of a long arm of the sea protects it from the storms and heavy rains of the coast. Many coastal steamers put in here, and fishing boats bring their catch to the canneries. The city has several large sawmills.

Punta Arenas · Situated on the Strait of Magellan, this is the most southerly city in the world. It is about half-way between the Atlantic and the Pacific oceans, and is the centre of the sheep-raising industry of Southern Chile. It exports mutton, skins, and wool.

Juan Fernandez Islands

About 400 miles off the west coast lies a group of islands belonging to Chile. Lobster fishing is the chief industry.

The People of Chile

Chile differs in many ways from the other Andean countries. One of the chief differences is in its people. Most of them are Mestizos. There are few pure-blooded Indians. The Mestizos of Chile are unlike those farther north, since their Indian ancestors belonged to a different tribe—the Araucanians. These Indians were never conquered by the Spaniards. They lived in the forests of Southern Chile, and the Spaniards, who were not used to thick forests, were afraid to raid their villages. Instead, for years, the Araucanians raided the Spanish settlements around Santiago, much as the Iroquois raided the French settlements in the St. Lawrence Valley.



Punta Arenas, on the Strait of Magellan, is the world's most southerly city.

Progress in Chile

Chile is fortunate in having more coal than the other countries of South America, and has now begun to develop its great hydroelectric power resources. It is more advanced in many ways than the other Andean countries, for it uses more electricity than the other countries of South America, has a better system of railways, and, in proportion to its population, more industries.

Yet Chile is not able to raise enough food, and the methods of farming are far from modern. Railway rates are very high.

"Fomento" · Working to improve conditions and trade in Chile is an organization called "Fomento," which means progress. When sales of nitrate, the chief export, fell off, as other countries began to make their own fertilizers, Chile became almost bankrupt. The country had never raised enough food for its own needs, and without money from exports, it could no longer buy food, machinery, and the other things it needed. Then some of its countrymen formed an organization, "Fomento," and are working to improve methods of farming, introduce new crops, start new industries, find foreign markets for Chile's produce, better living conditions, and build prosperity for their country.

A REVIEW

REPORTS TO GIVE · Look up information on one of the following topics. Prepare a report to give to your classmates.

Control of insect pests in the tropics.
The Magdalena River.
The Pan American Highway.
Work on a sugar plantation.
The Peruvian Current.

ARE YOU SURE OF THESE WORDS? Use the following words in sentences to show that you understand their meaning: ponchos, cultural centre, mole (in a harbour), lighter (used in shipping), cash crop, kapok, malaria, subsistence crop, earthquake.

HOW ARE THESE USED? What commercial use is made of the following products: tagua nuts, cacao beans, caliche, salt, copper?

A TOPIC TO DEBATE · Resolved that life in the highlands of Peru is better than that in the eastern Montaña.

WHERE WOULD YOU GO TO SEE THESE? **1.** Cacao beans drying in the streets.

2. An ancient Incan city.

3. The largest harbour on the Pacific coast of South America.

4. A marker showing the position of the equator.

REASONS TO GIVE · Give as many reasons as you can why: **1.** The United States is interested in Colombia.

2. The eastern slopes of the Andes have been so little developed.

3. Chile is more advanced than the other Andean countries.

4. The Talara oil field was the first to be developed in Peru.

HOW GOOD ARE YOU AT MATCHING? Which place named at the left goes best with each description at the right?

Cusco	Plains shared by Bolivia, Paraguay, and Argentina
Callao	An island forming the southern part of Chile and Argentina
altiplano	Ancient silver-mining centre of Bolivia
Potosí	The capital of the Incas
Gran Chaco	The port for Lima
Tierra del Fuego	The most southerly point in South America
Cape Horn	The high plateau of Bolivia

QUESTIONS TO ANSWER · **1.** What part of Peru is called its "Land of Tomorrow"? Why is it given this name?

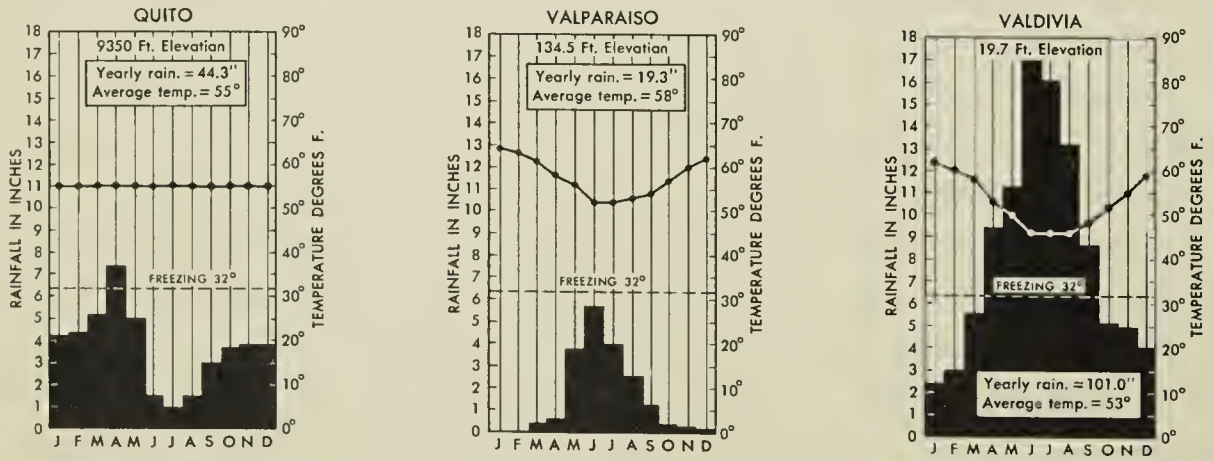
2. Which two of the neighbours of Bolivia are especially interested in its mineral wealth? In which mineral are they most interested?

3. Why is the cost of living so high in Bogotá and La Paz?

4. What food crops are raised by Indians in the highland regions of the Andes?

5. Of what raw materials are the following articles made: ponchos, shoes, rope, chocolates, cocaine, sacks for coffee, Panama hats, pottery jars, quinine?

AN EXPLANATION TO GIVE · Explain why a desert lies at the western base of the central Andes Mountains and an equatorial forest at the east.



Climatic graphs of Quito, Valparaiso, and Valdivia.



Aerial Explorations, Inc.

Over the Andes.

COUNTRIES OF THE PLAINS

FROM MOUNTAINS TO PLAINS

Routes across the Andes · There are several ways of travelling across the Andes from Chile to Argentina. One may go by train, on the Transandine Railway, which was built to connect the plains of Argentina with Valparaiso. To build it, engineers had to overcome great difficulties. The lowest passes, except in the far south, are all more than 12,000 feet high. This is higher than many peaks in the Canadian Rockies. The Transandine Railway runs through a tunnel under the Uspallata Pass at about two miles above sea level. It is possible, too, to drive along a remarkable highway which stretches all the way from the Pacific coast to the Atlantic. Many travellers, however, prefer to make the journey, as we shall, by plane.

Over the mountain barrier · Leaving Santiago early in the morning, the plane heads northward and begins to climb. Santiago shrinks to the size of a toy town, and the vineyards and orchards beyond the city become a patchwork of different shades of green.

Soon we turn to the east above a broad river valley, and head straight for the mountains, climbing steeply. The separate peaks, powdered with snow, appear larger and larger, and soon they are below us. To our surprise, these peaks are not part of the main range of the Andes, but are merely foothills.

Up, up we climb, with mountains below us and ahead. Again we think we are over the top, only to discover a higher wall of mountains beyond.

Up again and up, jagged peaks and snow-covered crests below us on all sides and ahead. Twenty thousand feet, twenty-one thousand feet! Below us, among the peaks, is a lake with ice-blue water. To the north of our course lies Mount Aconcagua, 23,083 feet above sea level, the highest peak in the western hemisphere. To the south is another towering peak, only a hundred feet lower. Such awful beauty and majesty can never be forgotten!

The eastern foothills · Now we begin to lose altitude as we drop over the eastern foothills.

Unlike the forested foothills on the western side, these hills are barren and bleak. Thorn bushes, tufts of coarse grass, and cactus are the only forms of vegetation. There must be very little rainfall here. Down we come, down and down! Ahead of us lies an endless stretch of level land as far as the eye can see. Beneath us is a small carpet of green set in the desert, the oasis of Mendoza, "the garden of the Andes," as its people like to call it. This city is a gateway to the Andes. To it come all the roads and the railway, on their way to the tunnel below the Uspallata Pass, which is the only place in hundreds of miles where the mountains can be crossed. Mountain streams provide water to irrigate the fruit orchards, vineyards, and bright green fields of alfalfa.

On from Mendoza, we fly eastwards. The ground below us is brown, with patches of coarse grass and low bushes. Cattle and sheep, looking like ants from the plane, roam these dusty plains. Now and then we notice tiny figures moving faster than the rest. These, we are told, are the gauchos, the cowboys of Argentina.

The Pampa · Gradually we notice that there is less brown and more green below us. Fences, like threads, make a pattern across the flat plain known as the Pampa. Clusters of buildings can be seen here and there.

Wheatlands and railways · More and more green appears below us. Much of it is wheat, for this, we are told, is part of the great wheatlands of Argentina. As in Canada, wheat is the most important crop of the country.

Railways appear closer together and often we see a locomotive pulling a long train of cars. The Pampa is a railway-builder's paradise—level land, no rocks to blast for cuttings, no mountains to climb, no curves, very few bridges to build. As a result, this part of Argentina has many fine railways. They form fan patterns around the chief cities, Buenos Aires, Rosario, Santa Fé, and Bahía Blanca.

Highways · We notice that there are fewer roads than we had expected to see.

"Yes," the hostess tells us, "you must find it strange that we boast of our railways and not of our roads. To tell the truth, we have few good roads, although each year more are built. To make a good roadbed stone is needed. It is possible to ride for a hundred miles across the Pampa without finding a single stone big enough for a slingshot. To bring stone long distances makes the cost of the road high. So dirt roads are still common, thick with dust when the sun shines, and deep with mud when it rains. Dust is a part of our life on the Pampa. The

The Pampa—a vast, flat, fertile plain.

Pan American World Airways System



air is seldom clear, nor the sky a deep blue as it is in Mendoza. On the other hand, dust gives us the brilliant sunsets for which the Pampa is famous."

The end of our flight · More villages, more railways, more roads, smaller fields, all these are signs which tell us that we are nearing a large city. At last the outskirts of the city appear, then the airport, and we are down, in Buenos Aires, the capital of Argentina.

ARGENTINA—THE BUSIEST COUNTRY IN SOUTH AMERICA

When we leave the countries of the Andes and enter Argentina, we realize that this country is much more advanced, busier, and more prosperous than any we have yet visited in South America. Let us study our maps to see if we can find the reasons for the differences between Argentina and the Andean countries.

A COMPARISON TO MAKE · On page 272 find the area of Argentina and that of Canada. How do they compare? Also compare the population of the two countries. Make a single statement that includes both comparisons.

MAP STUDY · **1.** Argentina has four large rivers: La Plata, which is really a great estuary collecting the water of the other three rivers, the Uruguay, the Paraná, and the Paraguay. Follow their courses on the map on page 125. How many of them serve as a boundary line between Argentina and one of its neighbours? Find also the Pilcomayo, a tributary of the Paraguay, which forms much of the boundary between Argentina and Paraguay.

All these rivers are navigable, but, like the Mississippi, they are choked with mud and soil from the plains through which they flow. This fills their channels with sand bars and mud flats, which make navigation difficult.

2. Find the tropic of Capricorn where it crosses Argentina. Can Argentina be called a tropical country? Is there anywhere in Argentina where the sun can ever be seen directly overhead at noon?



The southern part of South America.

3. What is the latitude of the most southerly part of Argentina? Find across Canada the line showing the same latitude north of the equator. Temperatures in southern Argentina never drop as low as those in the same latitude in Canada. The reason for this is that South America is so narrow in the south, and so much broken up into islands, that no point is far from the ocean. As the sea here does not freeze over even in winter, the winds blowing onshore are not extremely cold.

4. Compare the climatic graph for Buenos Aires on page 275 with that for Winnipeg on



James Sawders

The Gran Chaco in northern Argentina.

page 274. From a map find out which city is nearer the equator. Which city has the higher summer temperature? the lower winter temperature? the greater rainfall? Try to give reasons for what you find.

A SUMMING UP · Now, from all that you have learned, try to give reasons why Argentina is busier and more prosperous than the Andean countries. As you read this chapter you will find other reasons which you should later add to those you have.

Making maté tea. Boiling water is poured over the dried yerba maté leaves, and the tea is sipped through a metal tube.

Pan American World Airways System



The Regions of Argentina

Any country with as great a difference in latitude between north and south, and as great a difference in elevation as we have already found between Mount Aconcagua and Buenos Aires, must have great differences in climate and living conditions. Argentina falls into four regions—the Gran Chaco, the western dry lands and oases, the Pampa, and Patagonia.

The Chaco · We have heard this name before, since Argentina shares with Bolivia and Paraguay this great stretch of grasslands, swamps, and forests. A study of the rainfall map on page 84 will explain why the grasslands are in the west and the forests in the east in this region.

Few people live in the Chaco. The government is trying to interest colonists in opening up this large region. The chief crops are sugar, rice, corn, tobacco, cotton, flax, and, in the drier parts, wheat. Floods are common and crops cannot be planted until the waters subside. Two other products of importance, *yerba maté* and *quebracho*, come from the northeastern part of the Chaco.

Yerba maté is the tea used in much of southern South America. It is made from the leaves of a type of holly tree which grows wild in the forests. It is found in that narrow part of Argentina between the Paraná and Uruguay rivers, and in the nearby parts of Paraguay and Brazil. To make production easier and more certain, plantations have been laid out.

Quebracho means "axe-breaker," and is the name given to a tree which grows wild in the forests of the Chaco. The chief use of quebracho is for tannin, used in tanning leather. Quebracho is also used for fence posts, as far south even as the Pampa, for railway ties, for wagon wheels, and some-

times for fuel. As it takes a hundred years for a tree to mature, careless cutting of quebracho forests, which are found nowhere else in the world, will ruin the trade. Most of the quebracho exported goes to the United States. Some comes to Canada.

Both cattle and sheep are raised in many parts of the Chaco, especially in the south.

The western dry lands and oases · This includes the foothills of the Andes, the Argentine portion of the altiplano, and the desert oases.

The dry lands are useful only for grazing. The cattle are scrawny and of little use, except for their hides, and the fleeces of the sheep are often filled with sand and gravel.

We have already seen the oasis around the city of Mendoza. This is the most important of many such oases found where water from the Andes makes agriculture possible. In most of these, the raising of grapes and other fruits, and the making of wine are the most important occupations.

Farther north sugar cane replaces grapes as the most important crop. Tucumán, an old city on the Inca and Spanish road to La Paz, is the most important settlement. In this one city there are thirty sugar refineries. Roads from west, east, and south meet here to cross the mountains to Bolivia. This makes Tucumán a marketing centre.

Many of the towns of western Argentina were founded by settlers from Chile and Peru. Most of the Mestizos of Argentina live in them. People of European origin, especially Italians, work in the vineyards and orchards and on the sugar plantations.

Two resort centres lie within this region. One is the Argentine Lake District, across the Andes from the Lake District of Chile. The other is the mountain resort area around Córdoba.

The Pampa · This is by far the most important part of Argentina. Its herds of



Black Star

Gauchos herding cattle on the Pampa. Notice the dust, the sheltering row of trees, and the quebracho fence posts.

cattle, flocks of sheep, and fields of wheat, flax, and corn make it the greatest meat-exporting region in the world, and one of the finest agricultural areas.

A visit to an estancia on the Pampa · Let us visit an estancia on the Pampa. We go by train and are met at the station by the owner.

During our twelve-mile drive to his home, we get a better chance than we did from the plane to see the unending flatness of the Pampa. Also we notice the fine yellow dust on the shiny surface of the car—the Pampa dust, about which we have heard so much.

Long before we reach our destination, we

Shearing sheep on an estancia in the southern part of Argentina.

Three Lions



can see the buildings of the estancia with their sheltering trees. Our host tells us that the Pampa, like our prairies, was treeless when first settled. Now willows, poplars, and eucalyptus trees from Australia have been planted around the buildings and along some roads.

Near the estancia buildings we see a windmill, and we ask our host about it.

"Although this part of the Pampa has a fair amount of rain, streams and ponds are rare," he tells us. "Rainwater soaks into the light deep soil, forming ground water. Water for all purposes must be pumped from underground. When you get nearer to the windmill, you will see around it the troughs where the animals come to drink."

The home of our host is large and well built, and is surrounded by trees, gardens, and flower beds. Other buildings are scattered around; some are the homes of the many workers, some give shelter to the farm machinery and carts, others store grain, one is a blacksmith shop. Here and there we see horses, dogs, and a few cattle. Our host explains that most of the cattle are grazing at some distance from the house.

Everyone on the estancia works hard. The workers are up at dawn to be about their tasks. We learn that this estancia covers 100,000 acres (rather more than 150 square miles). There are 14,000 cattle, 100,000 sheep, and more than 2,500 horses on the estancia pastures. To look after all these animals, there are about 500 workers —men, women, and children.

Although the horses and cattle brought to Argentina by the Spanish settlers lived on wild grasses, the cattle on a modern estancia graze on much better grass, the seed of which was brought from Europe. Alfalfa, too, is grown to feed the animals during times of drought and to fatten them for market. Because there is no deep snow, the animals can live out-of-doors the year round. Three or four times a year all the animals are dipped in tanks of chemicals to help keep them free from ticks which carry disease.

When our host drives us around part of the estancia, we remark on the miles of wire fences dividing the enormous fields.

"Yes," replies our host, "those wire fences are one of the things which brought us prosperity. They make it possible to grow alfalfa, and to separate first-class stock from poorer animals. By selling off the poorer animals for hides and for *jerked beef*, we gradually develop first-class stock. Jerked beef, by the way, is meat cut in strips and dried in the sun. It is used where there is no means of keeping meat fresh."

We notice wheat growing in several large fields, and are surprised to find this crop on a cattle ranch.

"That is not my wheat," our host tells us, "although it is grown on my land. Each year I let out a certain part of my land to tenant farmers. As a rule, they keep the land for three years. The first year they grow wheat, the second year they grow corn, the third year they plant alfalfa, and then turn the land back to me. I get half the crop each year as rent.

"Times are changing, though. The Gov-

Canadian farm machinery is widely used on the wheat fields of the Pampa.

Courtesy of Massey-Harris



ernment is trying to buy up our land to sell to these wheat farmers. Sometimes I think that the old life on the estancia will soon be gone forever. There will be many smaller farms instead, each with a family to operate it."

Agriculture on the Pampa · Wheat forms the largest single cereal crop, and in some years Argentina exports as much wheat as Canada. Since the wheat harvest comes in February and March, Argentina can sell its wheat in Europe at a time when the St. Lawrence route is closed.

Most of the corn crop in Argentina is grown farther east than the wheat crop. Study the rainfall map on page 84 to find the reason for this. Rosario, on the Paraná, is the centre of the Argentine corn belt. Argentina exports more corn than any other country in the world.

Santa Fé, north of Rosario, is the centre of the flax belt. Argentine flax is grown for its seeds, and linseed is exported in large amounts. Linseed oil is used in paints.

Alfalfa, as you know, is widely grown. Grass seed, clover seed, and bird seed are other important crops. Some of the first two reach Canada.

The narrow peninsula north of Buenos Aires, between the Paraná and Uruguay rivers, is largely used for growing fruits—peaches, pears, plums, and the like. Willows and poplars are grown on many fruit farms. Their wood is used in making fruit baskets. Most of the fruit crop is eaten in Buenos Aires and other cities of the Pampa, but some is exported, even as far as to Canada.

Cities of the Pampa · *Buenos Aires* is the largest city in the southern hemisphere. More than a fifth of all the people in Argentina live there. With a perfectly level plain on which to build, and unlimited space, the city has spread out surprisingly, with endless miles of streets. In many ways it is less



Railways fan out from Buenos Aires to bring the products of the Pampa to the city. The inset shows where the products are raised.

Spanish in appearance than the cities in the Andean countries; it is more like cities of North America. There are large buildings, skyscrapers, factories, huge apartment houses, parks, and every modern means of transportation, including five subways. Its large harbour, with its modern equipment, grain elevators, huge warehouses and ship-basins, ranks second to New York in the western hemisphere in the tons of goods handled.

Buenos Aires is like a great funnel through which pass the products of the Pampa, on their way to feed the hungry peoples of Europe. Railways fan out from it like the spokes of a wheel, bringing to the city the cattle, sheep, wheat, corn, flax, fruits, and vegetables produced on the vast fertile plain between the mountains and the sea. We think of Winnipeg as our greatest railway centre and our greatest wheat market. In Argentina, Buenos Aires is both of these and more. What would our prairie farmers and grain dealers give to have Winnipeg a seaport as well? No long haul by train and lake-boat from Winnipeg to Montreal or



H. Armstrong Roberts

Buenos Aires has wide, busy streets and beautiful buildings.

Churchill would be necessary, no loading and unloading. More than that, the port of Buenos Aires is open the year round, while our grain route through the Great Lakes and the St. Lawrence is frozen over for at least four months of every year.

Rosario is the nation's second largest city, with a population of almost half a million. It has a well-equipped port, which can be reached by the largest ocean steamers. There are grain elevators and packing plants, flour mills, and a variety of manufactures.

Santa Fé, on the Paraná River, has large docks, flour mills, and plants for extracting tannin from quebracho chips and for making butter, cheese, and evaporated milk.

Ships from many lands come to the great harbour of Buenos Aires.

Pan American World Airways System



La Plata, on the La Plata estuary, is one of Argentina's "model cities." It has an oil refinery, meat-packing plants, and various other industries.

Bahía Blanca is at the southern end of the wheat belt. Ships can dock beside its great grain elevators. It has flour mills and meat-packing plants. A large naval base is near the city.

Patagonia · You heard in Chapter VI of the high, dry plateau of Patagonia, cut off by the Andes from the winds bringing moisture from the Pacific. The weather here is always cool, with strong, blustery winds and sudden changes of temperature. Rivers have cut broad, deep valleys in the plateau, and there, sheltered from the violent winds, large flocks of sheep and goats find good pasture. Cattle are raised wherever sufficient rainfall provides good grazing. Many of the settlers of Patagonia came from Scotland, Wales, and New Zealand, where cool grasslands, good for grazing, are also found. As you may imagine, hides, meat, and wool are the three chief products of this region. Railways collect these products and carry them to various small ports along the coast.

Commodoro Rivadavia is the musical name given to Argentina's most important oil field. There are more than 700 wells. Gas is also produced, and is piped nearly 1,000 miles to Buenos Aires.

Tierra del Fuego · The island, at the southern tip of South America, is shared between Argentina and Chile. The climate is cold, wet, and windy. Rich pasturage encourages sheep grazing. The wool is coarse but good.

Minerals of Argentina

Argentina lacks the mineral wealth of the Andean countries. It is short of the minerals necessary for modern industry—iron, coal, and oil. The only iron deposit in the coun-



James Sawders

Breaking in a horse on a ranch in Patagonia. Notice the ranch buildings and the windmill.

try is in the far northwest, a thousand miles from Buenos Aires. A small plant nearby produces pig iron. Coal is mined in several places in the west, but transportation to the industrial east is costly, and the quality of the coal is poor.

Oil, as you know, is produced at Commodoro Rivadavia in the east, and near Mendoza in the west. Another producing area lies in the northwest, not far from the Bolivian oil fields. From all these fields, Argentina is able to supply only about half its needs.

Small quantities of various metals are mined in the western mountains. Many deposits of salt are found in the dry west.

Manufacturing in Argentina

The development of manufacturing has been slow. Two reasons for this have been the lack of fuels for power, and the fact that most of the people were busy farming or raising stock. To make matters worse, Argentina has little electricity. Most of what it has is produced by steam plants burning coal. The majority of the possible sources of hydroelectric power are too far from the industrial centres to make them of much use.

In spite of all these hindrances, manufacturing in Argentina is increasing. At present the value of industrial products is greater than those of agriculture and stock-raising combined. Most of these manufacturing industries use the raw materials raised in the country: wheat, flax, hides, corn, wool, cotton, tobacco, grapes, etc.

SOMETHING TO DO · Make a list of the raw materials of Argentina. Opposite each, list those goods which may be manufactured from it. Add the following articles which are by-products of meat canning: tallow, bone-ash, fertilizer, glue, gelatine, and glycerine.

On a large outline map of Argentina show the chief mountains, plateaus, rivers, and cities. Then in the proper places print the names of the important raw materials. This will guide you in deciding where many of the manufacturing industries are located.

Transportation and Trade

Railways · You have already heard much about the railways of Argentina. As a matter of fact, this one country owns about half

Some day Iguassú Falls may be used to produce electric power for Argentine industry.

Philip Gendreau, N. Y.





The principal railways of South America.

Many products are transported by river boat to the markets in Buenos Aires.

Three Lions



the railways in the whole of South America. Unfortunately all the railways of Argentina are not of uniform *gauge*. In North America all but a very few lines are "standard gauge," that is, the distance between the rails is the same—4 feet $8\frac{1}{2}$ inches. In this way any locomotive, railway car, or coach can go almost anywhere on the North American mainland. In some countries a narrower gauge is used. In Russia and Spain a wider gauge is common. Since most of the railways of Argentina were built by various foreign companies, the gauge varies too. The government now owns the railways and is beginning to rebuild the roads to a uniform gauge.

Roads and airways · The road system does not compare with the railway network, but an improvement is being made, both in the number and in the quality of the roads, as more cars and trucks are used. Transportation by air is possible to almost all parts of the country.

Trade · Unlike the Andean countries, Argentina's trade is chiefly with Europe, especially with Britain. Argentina's supply of meat to Britain is a necessity to the life of that country. In return, Britain sends to Argentina manufactured goods of many kinds.

Trade between Canada and Argentina is not important, since both countries raise many of the same products. Canned beef, beef extract, gelatine, hides, and quebracho are some of the goods coming to us. In return we send newsprint, farm machinery, asbestos, lead, aluminum, and electrical goods.

Argentina needs to import coal and oil for power and transport. Can you suggest where these important fuels are obtained?

The Growth of Argentina's Prosperity

The Spaniards who came first to Argentina, and for many years ruled it, took little interest in the great grassy plains. They

wanted gold and silver. For more than two hundred years, therefore, the country was almost empty. Early in the nineteenth century, other people from Europe—British, French, Italians, and Germans—saw the possibilities of these vast plains and settled in Argentina. They built railways across the Pampa to bring hides, wool, and tallow to the harbour in Buenos Aires. Pedigreed, or the finest-bred, animals were brought from Europe to improve the stock. When refrigerator ships were introduced, Argentina began to ship chilled meat to Europe. That was the beginning of the country's prosperity.

Today Argentina is a rich nation, the busiest nation in South America. About three-quarters of the people are of European descent, and most of the rest were born in Europe or North America. In spite of the fact that it is known as an agricultural nation, more than three-quarters of the people live in cities or large towns.



James Sawders, from Cushing

A market in Asunción, the capital of Paraguay.

PARAGUAY

Paraguay is like a beautiful princess waiting to be awakened. One traveller has called it a paradise. It has rolling forest lands, with soil rich for agriculture, and grassy plains suitable for raising cattle. It has great forest and mineral wealth. During most of the year the climate is delightful.

In spite of these advantages, however, Paraguay is very poor and backward. Two wars killed off more than half of the population, which even today is less than that of Greater Montreal. It has no seacoast, and its powerful neighbour, Argentina, controls its outlet to the sea, most of its shipping, and several of its chief industries.

The people of Paraguay · In contrast to Argentina, over three-quarters of the people of Paraguay are Mestizos. These Paraguayans are different from Mestizos in other parts of South America. The Indians whom their Spanish ancestors married were the Guarani. These were a gentle, intelligent, and proud people, who made a treaty of friendship with the Spaniards. Their language is still spoken, by many white people as well as Indians, although Spanish is the official language.

SOME MAP EXERCISES · **1.** Study the map on page 125. You will find that the eastern part of the country, where most of the people live, is upland. The larger, low-lying part to the west is the Paraguayan portion of the Chaco. From what you know about the Chaco, try to explain why there are few people in western Paraguay.

2. Follow the course of the Paraná, the Paraguay, and the Pilcomayo rivers. With which two neighbours does the Paraguay form a boundary? A treaty signed after the first Paraguayan war forbids the building of bridges across the La Plata, Paraná, and Paraguay rivers from one country to another. Train ferries are used instead.

3. The climate of Paraguay is said to be like that of Florida. Compare the latitude of the two regions. Look at the rainfall maps on pages 12 and 84. Do Florida and Paraguay receive about the same amount of rain in a year?



Fenno Jacobs, from Three Lions

Oxen are still used to crush sugar cane on this Paraguayan farm.

Products of a Fruitful Land

Food crops · Agriculture in Paraguay is carried on almost entirely in cleared patches in the forest. All necessary food crops except wheat are grown. The roots of the manioc plant are ground into a flour which is widely used in warm countries as a substitute for wheat flour. More rice is grown than the country needs, and cane sugar, sweet potatoes, corn, beans, and many fruits and vegetables are produced. Oranges, grapefruit, bananas, and pineapples grow well. Vegetable oils, which replace butter in most warm countries, are extracted from coconuts, cotton seed, peanuts, and castor beans. Meat is provided by herds of cattle which feed on the grassy plains. One of the most profitable crops is maté, often called Paraguayan tea.

Other crops · Cotton of excellent quality is raised, and the production per acre in Paraguay is double that in the southern United States. Tobacco is exported to Argentina and to several European countries. Quebracho trees are cut in large quantities.

Minerals · The mineral wealth of the country is largely unknown, although iron ore has been found in many places and some is being mined. Copper and other metals are known to occur.

Manufacturing · Very little manufacturing is done. Raw products are processed to meet local needs. Canning factories, sawmills, and plants extracting tannin from quebracho bark provide goods for export. One difficulty in manufacturing is the lack of power. Electricity has to be manufactured by steam plants, most of which burn wood.

Cities of Paraguay

Asunción · The capital of Paraguay is situated on the Paraná River, about 950 miles from the sea. It is an old city, founded in 1537, and a very beautiful one. Wide steps lead up from the river's edge. The city is Spanish in appearance, with red-roofed houses, each built around a central patio. Flowers of many kinds blossom in abundance: orange blossoms, poinsettias, jasmine, hibiscus, and many others.

Concepción · The second largest city in Paraguay is Concepción. It lies on the Paraguay River, to the north of Asunción, in the centre of a cattle-raising district. It has cotton gins, flour mills, and sawmills. The city carries on some trade with Brazil. Transportation of goods to market is difficult, but it is hoped that the present railway line will be continued to the Brazilian border.

Why Paraguay Is Not Prosperous

The chief difficulty lies in poor trade outlets. Products of a fruitful land are of little use if they cannot be sold on the markets of the world. Navigation on the Paraguay-Paraná river system is, as you know, difficult. Ocean steamers go no further than Santa Fé in Argentina. River boats reach Asunción, and even get as far as Concepción on the Paraguay River. This means that goods must be unloaded and loaded again to cross the ocean. Transportation is slow, too. It takes fifty-six hours to reach Buenos



Fenno Jacobs, from Three Lions

A river boat on the Paraguay River.

Aires from Asunción by rail and at least three days by boat. An Argentine company controls the railway.

A second difficulty, as you may have guessed, is that the industries and trade of Paraguay are largely controlled by its powerful neighbour Argentina. Also, within the country itself, wealthy landowners control much of the farming and stock-raising. Lack of education and sanitation further help to keep the people backward.

Hope for the Future

As in the other countries of South America, scientists are trying to improve conditions in Paraguay, and to help the people live more safely and comfortably. New products are being introduced, and better methods of farming are being taught. Colonizing is being encouraged, and settlements of Mennonites from Germany, the United States, and Manitoba are slowly being established. In addition to the crops native to the country, these settlers are raising crops familiar in their homelands, and other crops known to be suited to the climate and soil of their new home. Some such crops are grapefruit, grapes, rice, soya beans, peanuts, and cotton.

URUGUAY

A buffer state · To understand Uruguay's position let us look at a map. On the map on page 125 locate the La Plata and Uruguay rivers. Find Brazil, to the north, and Argentina, beyond the La Plata and Uruguay rivers. Between these two giant states, find little Uruguay. Its position will explain why there was at one time a great deal of fighting in the country.

The first struggle was between the Portuguese and the Spaniards. When they gave up their claims to South America, Brazil



By Ewing Galloway, N. Y.

A street in Montevideo. Uruguayans are proud of their beautiful capital city.

and Argentina continued the struggle. At last Great Britain helped to end the quarrel, and in 1828 Uruguay became independent, a "buffer state," the British called it, since it separates its two powerful neighbours.

Uruguay is small, its people are few, and it is peaceful and well governed. Because it controls the entrance to the La Plata, its position will always be important.

The land · A great many people think of Uruguay as a second Argentina, only much smaller. This is not correct. Like Argentina, Uruguay is an important meat producer, and like Argentina it has great plains. Like Argentina, too, its people are mostly of European descent. But there the likeness ends.

Much of Argentina is far inland, with seacoast only in the east. Uruguay has water on three sides. From the map on page 125 find the names of the bodies of water which bound it.

Argentina is very long from north to south. It reaches beyond the tropic of Capricorn in the north and into the latitude of cold and stormy winters in the south. Tiny Uruguay lies between 30° and 35° S. latitude, at about the same distance from the equator as are Georgia and South Carolina in the United States.

Argentina has endless miles of level plains. Only in the south and along the Uruguay River has Uruguay any level land. The rest of the country consists of rolling land with hills in the north.

A really temperate climate · Partly because of the water around it, Uruguay has a climate without extremes. Ice and snow are unknown, so that winter shelter for the stock is not necessary. Plentiful rainfall at all seasons feeds the many streams of clear water, so that there is no need to pump water.

Grass and forests · A very good type of grass covers the plains and low rolling hills. Alfalfa, which is so common in Argentina, is therefore little used to fatten livestock. Forests grow in the valley bottoms, supplying wood for fence posts, building, and fuel.

The people · The first white settlers were Spaniards and a few Portuguese. Most of their descendants are employed in the animal industries. Italians are found in the agricultural area in the south. English, Germans, Scandinavians, and their descendants make up most of the rest of the population.

Study the population map on page 46 to discover where most of the people live.

Montevideo, the chief city · The coast of Uruguay is lined with resort towns, most of them with beautiful beaches of white sand. Hotels large and small, fine homes, and small cottages, amusement parks—all tell of the importance of the Uruguayan coast.

There is only one large city in Uruguay. That is Montevideo, the capital of the country. In it live one-third of the people. It is a beautiful city, with wide clean streets, fine buildings, parks famous for their flowers, packing plants, and a fine harbour.

Animal industries · When the Spaniards came to Uruguay, they brought domestic animals with them. Some of these escaped and roamed the plains. In time, gauchos from Argentina hunted these animals for their hides. Later the English brought over their pedigreed stock to replace the poorer animals. Animal products are now very important to the country. Wool is a leading export, and meat-packing is one of the chief industries.

A frigorífico · Since meat-packing is so important in Uruguay, we should visit one of the *frigoríficos* in Montevideo. A guide meets us at the gates and begins at once to explain.

"You know, of course, that Uruguay is one of the great meat-producing countries of the world. Meat and meat products provide almost three-quarters of the country's exports. There are four frigoríficos, or meat-packing plants, in Uruguay; three in Montevideo and one in Fray Bentos, on the Uruguay River. Cattle, sheep, and pigs are slaughtered here by the thousands. They come in by train, by truck, or 'on the hoof.'

"Here we are now at the plant. We shall have a look first at the chilling room. These great carcases, which you see, have already travelled some distance through the plant. After slaughtering, the animal is hung from a high moving trolley, which carries it first to be skinned, then to have the blood drained out, then to be carved in two and washed and trimmed. Next, it enters this chilling room. These men whom you see are examining the meat, grading and stamping it.

"What is the difference between chilled meat and frozen meat? Chilled meat is kept at a temperature just above freezing, as in a home refrigerator. All the choicest meat is chilled for shipment. It must be handled quickly, kept always at the same temperature, and it cannot be kept as long as frozen meat. Chilled meat brings a higher price than frozen meat. Most of our chilled meat goes to Britain.

"We shall now go to the canning plant. Here beef is canned and beef extract is made. Next time you visit your home grocer, look at his corned beef, as you call it. You will probably find that it came from Uruguay or Argentina.

"Your time is up? Too bad! You have not seen where the hides are treated, and glue, gelatine, bone-meal, fertilizer, and all the other by-products are made. Good-bye, and don't forget us the next time you eat a corned-beef sandwich."

Crops for local use and export · Only in the southern plains, especially around Montevideo, is the raising of crops important. Wheat is the largest single crop. Most of it is made into flour for local use, but a little is exported. Flax is the next most important crop. The greater part is exported as linseed. Corn, oats, and barley are grown and cut green for fodder. Citrus fruits are produced in the north, and orchard fruits and grapes in the south. The grapes are chiefly sent to the wineries in Montevideo.

Minerals and power · Metals, as well as coal and oil, are entirely lacking. Marble, granite, and limestone provide building stone, and the raw material for cement.

Uruguay was the first country in South

A frigorífico in Montevideo. Meat and other animal products are Uruguay's chief exports.

James Sawders





Pan American World Airways System

Punta del Este, near Montevideo, is one of the many beautiful seaside resorts which line the coast of Uruguay.

America to use electric lights. Most of the electricity is made in plants where imported coal is burned, although a large hydro-electric development on the Rio Negro is also now supplying much needed power.

Manufacturing · Uruguay does little manufacturing apart from the meat-processing industries. Give as many reasons as you can why this is so. Flour mills, woollen mills, bakeries, wineries, and factories making boots and shoes, cigarettes and cigars supply some of the needs of the people. Since Montevideo, where so many of the people live, is a port, the goods they need to import are saved a long haul across the country, which would add to their cost.

Trade · Uruguay carries on a brisk trade with Argentina. Great Britain and the United States are its best overseas trade partners.

Transportation · Uruguay, with plenty of stone for road-building, has a good network of roads. For this reason railways are not as important as they are in Argentina. Great Britain built most of the railways in the country, but they are now owned by the government. All are of standard gauge. The government owns or controls the telegraphs and telephones, many of the chief industries of the country, and the fine theatre in Montevideo.

A REVIEW

QUESTIONS TO ANSWER · **1.** What is the most important agricultural crop of Uruguay?

2. What use is made of the following: alfalfa, grapes, quebracho, flax, wheat, corn, rice, yerba maté, willows and poplars, hides?

3. A group of settlers from Manitoba started a colony in Paraguay. What differences in climate and way of living would they find?

4. What is meant by saying that Mendoza is a gateway to the Andes?

5. What advantages has Argentina in exporting wheat?

CHECK THE USE OF THESE WORDS · Use the following words in sentences which show that you understand their meaning: citrus fruits, orchard fruits, gaucho, frigorífico, quebracho, yerba maté, oasis, ground water, estuary, buffer state.

REPORTS TO GIVE · Choose one of the following topics and prepare a report on it to give to your class. To help you, use the index of this text and other reference books:

1. Sources of fuel and power in the Countries of the Plains.

2. The livestock industry of Argentina.

3. Locust "plagues" of Argentina.

A TOPIC FOR DISCUSSION · The railways of Argentina and several other countries of South America are not of the same gauge. Discuss with your classmates the value of a uniform gauge throughout the whole continent.

REASONS TO GIVE · **1.** Explain the reasons for the dry climate of Patagonia.

2. Argentina ships out both chilled and frozen meat. What is the difference? Why does chilled meat bring a higher price?

EXPLANATIONS TO GIVE · **1.** Why windmills are used on the Pampa and how they work.

2. Why trees are planted around buildings on the Pampa. On which side would you find them?



Pan American World Airways System

Rio de Janeiro, one of the most beautiful cities in the world.

BRAZIL

HOW DO WE COMPARE? Turn to page 272 and find the areas of Brazil and Canada. Now compare the population figures of the two countries. Which has the greater population? Combining what you have found about area and population, decide which country, Brazil or Canada, has the greater density of population, that is, the greater number of people for each square mile. What is your decision?

SOME MAP EXERCISES · **1.** Turn to the map on page 125. Locate (*a*) the chief lowlands of Brazil, and name them; (*b*) the Brazilian Plateau. Although much of Brazil is highland, the mountains cannot compare in height with the Andes, the highest being under 10,000 feet.

2. You are all familiar by this time with the chief rivers of Brazil: the Amazon, the Paraná, and the Paraguay. Find the São Francisco River in the northeast, and trace its crooked course through the highlands. Although the river is navigable through part of its course, falls where the river crosses the escarpment make it useless as a route from the Atlantic to the interior.

3. How many countries touch Brazil? Name them from the map. How many countries of South America do not touch Brazil? What do your discoveries tell you of the importance of Brazil to South America?

4. Using a piece of string and your classroom globe, measure the distance between Rio de Janeiro and (*a*) New York; (*b*) London; and (*c*) Lisbon, in Portugal. Which distance is shortest? Which is longest? How are these distances likely to affect Brazil's foreign trade?

5. On page 108 you will find a map showing the states of Brazil. Count them. Like Canada, Brazil has a federal government, which meets at Rio de Janeiro. Rio de Janeiro, like Wash-



The states of Brazil.

ington and Mexico City, is in the midst of a Federal District.

6. You have discovered above that, on the whole, Brazil, like Canada, has much land with few people living in it. Like Canada, one of Brazil's great needs is for more people. Are the reasons which keep Brazil empty the same as those which keep Canada empty? What are they?

THE PEOPLE OF BRAZIL

"The Melting Pot of the South" · You have already learned that Brazil was discovered by the Portuguese sailor Cabral in 1500. You have also learned that people from many lands—Portuguese, Spaniards, Negroes, Germans, Italians, Swiss, and Japanese—settled down in the country with the native Indians. Today Brazil is sometimes called the "Melting Pot of the South."

The descendants of all these people think of themselves as Brazilians. Yet not all Brazilians are alike. The differences between the various parts of their great country are slowly changing the people who live there. Those from Rio de Janeiro are not like those of the northeast coast, nor are the people of São Paulo like those of the state of Minas Gerais, while those of the Amazon Valley are little like any of the others. In spite of these differences, Brazilians are, as a whole, usually ready to work together as a national group.

As quite often happens in a rich and rather empty country, Brazilians are ready to move about, to try a change. If one crop fails, they move somewhere else and try another way to make a living. If the traffic of a city becomes difficult, or the buildings out-of-date, they tear down whole blocks and begin again on modern lines. When rainfall fails in the dry Northeast, thousands of families move to another part of the country, where conditions are more promising.

THE REGIONS OF BRAZIL

In so large a country, with such differences of surface and climate, we can learn only of one part of the country at a time. The chief regions of Brazil are the North, the Northeast, the Southeast, the South, and the West.

THE NORTH

A lowland region · This enormous area is usually understood to contain all the land drained by the Amazon River and its tributaries, and the coastal lands as far east as the deep bay on the north of the state of Maranhão.

It is a region of heat, heavy rainfall, dense forests, few people, and fewer roads. The sun and heavy rains cause plants to grow very rapidly. The branches of trees are so closely packed that little sunlight can get through and it is always dark on the ground. Most of the forest life—the flowers, birds, monkeys, snakes—is in the tree-tops. Only on the low rounded hills between the rivers are there any open grasslands. Those who have been there say that the climate on these hills, although hot, is pleasant and healthful.


Caribbean Sea
ARUBA
CURAÇAO
BARBADOS
Barranquilla
La Guaira
PEN. OF PARIA
Gulf of Paria
TRINIDAD
Maracaibo
Caracas
Cumaná
Barquisimeto
L. Maracaibo
San Felix
Ciudad Bolivar
El Callao
Cerro Bolivar
George town
Demerara R.
Paramaribo
Cayenne
VENEZUELA
GUIANAS
Mt. Roraima
Kaieteur Falls
COLOMBIA
EQUATOR
Rio Negro
River Amazon
Manaus
Belém
AMAZON LOWLANDS
Iquitos
Madeira R.
Tocantins R.
Fortaleza
Parnaiba R.
BRAZIL
Madeira Falls
Recife
São Francisco R.
BRAZILIAN PLATEAU
Salvador
ANDES MTS.
Beni R.
Mamoré R.
Goiaz
Goiânia
HIGHLANDS
PERU
BOLIVIA
Corumbá
Itabira
Belo Horizonte
Vitória
Volta Redonda
Petropolis
São Paulo
Rio de Janeiro
Santos
TROPIC OF CAPRICORN
PARAGUAY
Paraguay R.
Iguassú Falls
SERRA DO MAR
BRAZILIAN HIGHLANDS
Paraná R.
Uruguay R.
Porto Alegre
URUGUAY
Pacific Ocean
Atlantic Ocean
Scale of miles
0 100 200 400 600 800 1000



By Ewing Galloway, N. Y.

River boats carry cargos and supplies to and from villages on the Amazon.

The Amazon region is the largest area of unexplored forest in the world. In the old days, men went by canoes and small motorboats up the rivers and were sometimes lost to civilization for months or even years at a time. Some never came back. In the rainy season the rivers overflow their banks until in many places the country seems to be an enormous lake with trees growing in it, and it is easy to get lost because all landmarks are destroyed. Now planes carry explorers or workers to their destination and return for them at a stated time. Motorboats and paddle-wheel steamers carry supplies up and down some of the rivers, enabling small settlements to grow up on the river banks.

The people of the forests · The few people who live away from the main rivers in these gloomy forests are mostly uncivilized Indians. They barely keep alive by collecting food in the forests or by hunting or fishing.

Why are huts with thatched roofs and open sides suitable for the Amazon region?

Akademia, from Black Star



Some of them clear patches of ground from the jungle, and grow a little corn, a few banana plants, or the starchy plant called manioc. To make room for the garden, the bigger trees are hacked down, and the bushes are burned. The ashes help to fertilize the soil. The people have no ploughs, and so they must dig up the earth around the tree stumps with a stick. Soil in equatorial forests is not as fertile as many people think, as much of the plant food has been washed out by the heavy rains. After being used for only a few years, the soil of such a tropical garden becomes worn out, and the tribe must move to another place. These Indians seldom see a white man and have few things to offer in exchange for his goods. Prospectors looking for oil or other minerals in the distant forests near the Andes need to travel with care, as the Indians there may be unfriendly.

Forest wealth · There are many products in the Amazon region which are valuable if they can be gathered and exported. Some of them are rosewood, mahogany, ebony, rubber, Brazil nuts, and nuts of other kinds from which oil is extracted.

Cities of the North

This whole great region of the North has only two cities of importance. One is Manaus, 1,000 miles from the sea on the Rio Negro, a tributary of the Amazon, and the other is Belém, on an estuary of the Amazon, about a hundred miles from the open sea.

Manaus · Manaus is the same distance from the sea as is Montreal, but the water in the harbour is much deeper. Montreal is at the head of navigation on the St. Lawrence, for all but the smallest ocean-going ships. On the Amazon, ocean-going ships can sail another 1,300 miles past Manaus to Iquitos in Peru.

At one time Manaus was one of the most prosperous cities in Brazil. That was during the rubber boom, when Brazil was supplying all the world's rubber. The city was laid out with paved streets, electric lights, streetcars, homes, and an elaborate opera house. However, it was found that rubber could be produced more cheaply on the rubber plantations in Asia and the East Indies, and Brazil's rubber boom collapsed. Now Manaus is important for shipping timber, Brazil nuts, and some wild rubber.



Brazilian Government Trade Bureau

The opera house in Manaus was built during the rubber boom.

Gathering wild rubber · To understand better how the work of getting rubber is done, we shall visit a rubber-gatherer up the Rio Negro. We set out from Manaus in a motorboat, very early in the morning to avoid the heat of the day. As the boat put-puts along through the still water, our guide explains the work of the rubber-gatherer.

"Most of the land is flooded in the rainy season, and a rubber-gatherer can work only from June to October, when the ground is fairly dry. As his only means of travel is a small launch or dugout canoe, he cannot go far from the rivers. He works for an employer who owns a piece of land along the river. He has to look after an area which has between a hundred and two hundred rubber trees scattered through it.

"His first task is to cut a path from one rubber tree to another and so back to his shack of bark or leaves. At dawn he sets out with little tin cups and a small axe. With great care, so that he will not pierce the inner bark, he makes a gash in the bark of each tree. Below each gash he hangs a tin cup to catch the sap, or *latex*, that flows out. He visits all his trees before the hottest part of the day. Then he rests.

"In the afternoon, before the daily rain starts, he makes another call at each tree and empties the latex from the cups into a pail. Each tree gives him less than an ounce of latex. He is careful to wash the cup and place it, bottom up on a stick, at the foot of the tree. This protects it from rain or dirt so that it will be ready for the next day, when he will cut another gash in each tree.

"This sap-gathering may remind you of your Canadian maple-sugar industry, but believe me, the work of the rubber-gatherer is far harder and more dangerous. But now, here we are at our first stop."

Soon the boat is being tied up to a rickety wharf. Several large balls of greyish-looking rubber are piled ready on the shore. These are loaded into the boat, after supplies for the gatherer have been unloaded on to the dock.

As we set off again, someone asks how the rubber balls are made.

Curing the rubber · "Well," says our guide, "when the day's gathering is done, the gatherer lights a very smoky fire of nuts and settles down to cure the rubber. There are

The latex is cured over a smoky fire and formed into balls of crude rubber.

James Sawders





Pan American World Airways System

Belém is an important air centre and a port for the products of the Amazon.

several ways of doing this. One is to prop a pole about five feet long over the fire. The latex is poured onto the pole, a cupful at a time. The smoke hardens and darkens it. As each cupful is added, the pole is turned, so that in time a large ball of rubber is made. When the ball is about a foot through the centre, it is slipped off the pole, and a new ball is started. That is why each of these balls has a hole through the middle."

A declining industry · "You heard that Brazil is no longer the chief source of the world's rubber," our guide goes on. "This is partly due to the fact that the carefully selected trees on plantations give far more latex than do these wild rubber trees. Also, the plantation workers are more skilful. The Indians here are sometimes lazy and are usually ill from tropical diseases and so cannot work hard. When their rubber is sold, they may have barely enough to pay for the goods they have already bought. Rubber is still gathered from the Amazon forests, and some of it is exported. It is not as good as plantation rubber, however, and it is more costly.

"Some years ago an attempt was made by an American automobile company to grow plantation rubber near the Amazon River. Many millions of dollars were spent, but the plantation was not a success, and it has now been turned over to the Brazilian government, to produce rubber for use within the country. The increasing use of synthetic rubber is a further threat to the Brazilian rubber industry."

Back to Manaus · Before the heat is too great, we head downstream for Manaus. By the time we reach the city we are glad to thank our guide and get out of the sun into the shelter of the hotel.

Belém · Belém, sometimes called Pará, has a population of over 235,000. The city is built on low ground, and a great dyke is being built around it to protect it against floods. Belém is fast becoming an important centre of air travel. Air routes from North America, the West Indies, and Europe meet here on their way to all the important centres in South America.

Belém shared with Manaus the great rubber boom, and, like Manaus, suffered when the boom ended. Its chief trade today is in rubber, timber, nuts, and cacao. One of the important nuts is the *babassú*, which gives a large amount of vegetable oil for margarine, soap, and candles.

THE NORTHEAST

Except for its low, rainy eastern coast, this second-largest region of Brazil is unlike the Amazon Valley in almost every way. Much of it is high, with rocks in many places as ancient as Canada's Laurentian Uplands. Much of it is covered with coarse grass and thorn bushes. Here and there are gleaming white salt flats. Other parts of the Northeast form the great cattle lands of Brazil—the campos. Where there is enough rainfall, crops of cacao, sugar cane, cotton, coffee, and corn are grown.

Over most of this region the chief difficulty is the uncertainty of the rains. For several years there may be enough rain to produce good crops—there may even be floods. Then there may be no rain at all for

many months on end—sometimes even for two or three years. When this happens, crops dry up, cattle die, and farmers and their families must move out.

SOME MAP EXERCISES · **1.** Study carefully the rainfall maps on pages 62 and 84 to locate the regions of rain and the regions of drought. Then look at the temperature maps on page 59. Write a short paragraph about the climate in the various parts of Brazil. Where should you expect most of the people to live? Does the map on page 46 show that they do?

2. To find the limits of the Northeast, turn to the map of the states of Brazil, and with your finger trace a line from the deep bay in the state of Maranhão to the northeast corner of the state of Bahia, then to the point where it meets the Atlantic in latitude 15° S.

Crops of the Northeast

The Northeast was the first part of Brazil to be explored, and the first settlements were here. Brasil wood was the first article of trade. It was greatly prized in Europe for making dyes.

Then came the sugar boom. Sugar grows so well in the rainy lands along the coast that for many years Brazil provided most of the world's sugar. Negroes were brought in to do the work on the plantations. Later the Southeast began to produce more sugar than the Northeast, but sugar is still raised in the Northeastern coastal lowlands.

Tobacco became the next important crop. The delicately flavoured cigars for which Brazil is famous are manufactured in the Northeast. Curiously enough, the outside "wrapper leaves" must be imported. Brazil uses only about half the tobacco produced in the country, and so has a large amount for export.

Cacao is another important crop, particularly in the state of Bahia. Brazil stands second in the world in the production of cacao. Since cacao needs both heat and moisture, it grows on the coastal lowlands and on the east-facing slopes of the escarpment.

Cotton is well suited to the higher lands where the rainfall is not so great. So far, the boll weevil, which has done such damage to the cotton crop in the United States, has not appeared in Brazil. The production of cotton is leading to an important textile and clothing industry. Silk cotton, or tree cotton, is also raised in this part of Brazil. Tree cotton, you remember, produces kapok.

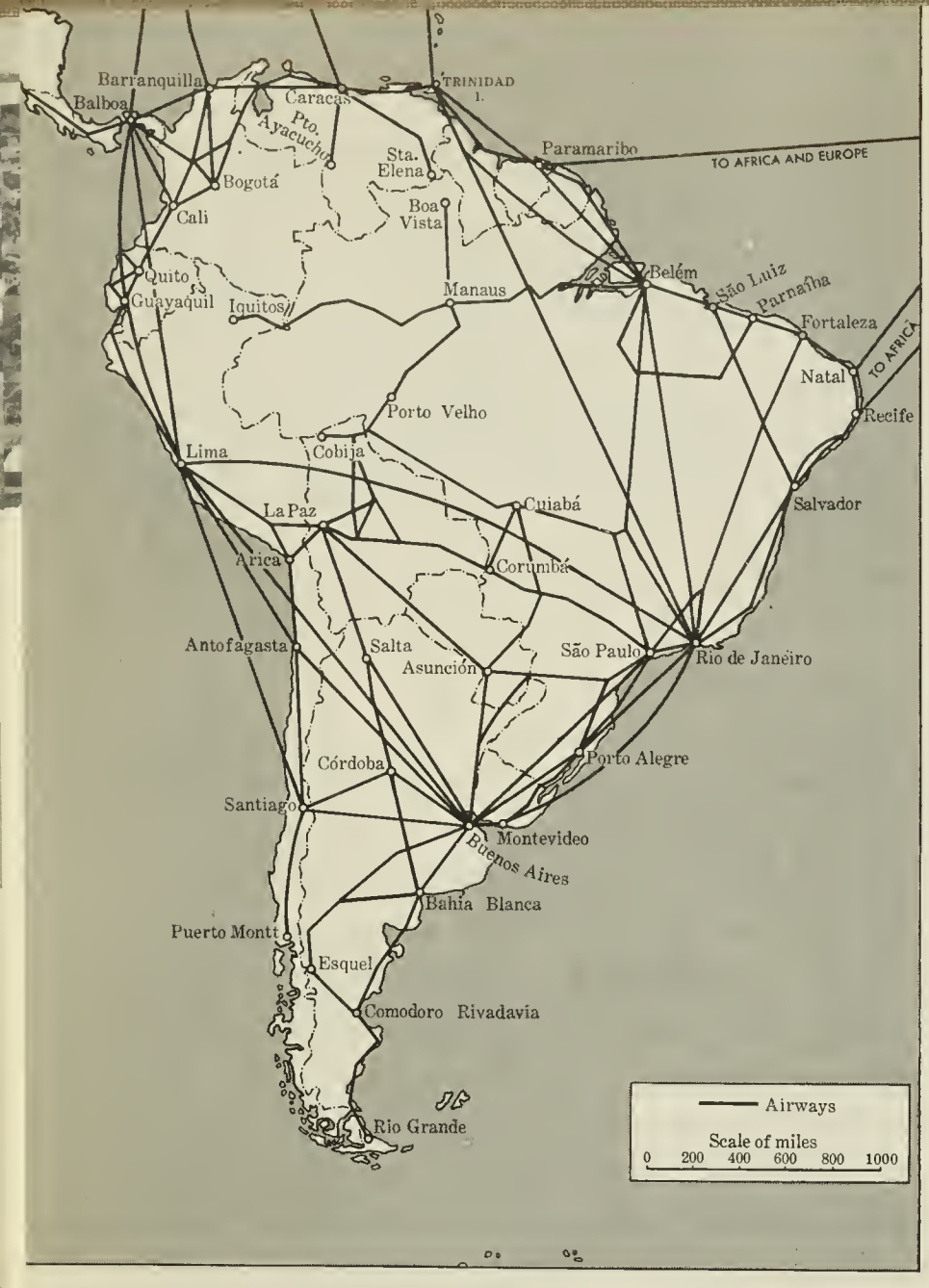
The state of Ceará produces *carnauba wax* from a type of palm tree. This wax is used in making floor and furniture polish, and shoe polish. Coconut palms grow along the coast between Belém and Rio de Janeiro. Brazilian coconuts are especially rich in vegetable oil.

Other products are coffee, *indigo* (which produces a blue dye), various plants and trees producing vegetable oils, as well as fruits and nuts of many kinds.

Inland from the productive coastal lands are the miles and miles of *sertão*, or back country. This is chiefly pastoral land devoted to raising cattle. This region is one of Brazil's greatest problems. Between floods and droughts the people of the Northeast sertão have over and over again lost all that they had. The government of Brazil is busy mapping the country, and scientists are studying how best the land may be used.

Cities of the Northeast

Salvador · Salvador, sometimes called Bahia, is on the Atlantic coast and has one of the largest harbours in South America. The wharves, market, and business blocks are built on the narrow strip of lowland circling the harbour. The government buildings, the better homes, and the newer part of the city are built on a higher level. Public elevators connect the two levels. The city is particularly noted for its many beautiful churches.



Airways of South America.

Salvador is the centre of the cacao and tobacco trades. It has cigar and cigarette factories, cotton and jute mills, sugar refineries, and many factories supplying the needs of its people. A large number of the people are of Negro descent.

Public elevators connect the upper and lower levels of Salvador.



Recife · Recife, sometimes called Pernambuco, is the largest city of the Northeast. It, too, is on the Atlantic coast, and is the first port of call for passenger ships from Europe and North America. Like Salvador, it has a large Negro population. It has sugar refineries, cotton mills, and tanneries.

Natal · Near the eastern hump of South America is what is said to be the largest airport in the world. Here planes take off to cross the narrowest part of the Atlantic Ocean, landing at Dakar, in Africa.

THE SOUTHEAST

The most important region · This part of Brazil, while smaller in area than the North and the Northeast, is the most important part of the country, has most of the population, and has the two largest cities. Here is the greatest variety of products, most of the mineral wealth, and most of the manufacturing of the whole country. Along the coast are lowlands, wooded and swampy in many places. Bananas are the chief lowland crop. Millions of banana plants have been set out on what were once mosquito-infested swamps. Behind the lowlands rises the escarpment, sharp and steep between Santos and São Paulo, sloping upward in a series of hills and valleys near Rio, leading to the rolling plateau, where coffee, corn, oranges, and cotton, and, in the valleys, sugar cane are grown. The rolling surface of the plateau becomes more and more hilly, rises in the state of Minas Gerais to the Brazilian Highlands, then slopes off again, in a series of hills and steep escarpments to the westward. The high ridge of mountains marks the divide between the Paraná and Amazon valleys. Streams on one side flow south and east to join the Paraná, those on the other side flow north and west to join the Amazon.

The Cities of the Southeast

Rio de Janeiro · Rio de Janeiro, usually called simply Rio, is the capital and heart of Brazil. Some people say that it is the most beautiful city in the world.

The city is built around a sheltered bay dotted with islands, most of them like huge smooth stone knobs. A wide avenue, Rio's famous Marine Driveway, follows the curve of the bay, and behind this the city rises up and up towards the green wooded slopes of the mountains. Two steep, rocky peaks stand like islands in the midst of the city—Sugar Loaf, at the water's edge, and Corcovado, higher and farther inland. On the top of Corcovado an enormous figure of Christ stretches out its arms as if in blessing.

The city of Rio has been very largely rebuilt since 1900. Today skyscraper apartment houses line the white beaches where fishermen dried their nets in the sun little more than fifty years ago. Ocean liners tie up at docks which stretch for ten miles along the shore.

The Santos Dumont Airport at Rio is interesting, for it shows that Brazilians are not stopped by difficulties. The city needed an airport, but space was scarce. Finally a hill was torn down, the rock was slid into the bay, and a fine airport was built on it.

São Paulo · São Paulo is located inland, on the plateau, where the air is more bracing than it is on the coastal lowlands. This city, the most important manufacturing centre in Brazil, is one of the fastest growing cities in the world. *Paulistas*, as its citizens are called, are a busy and energetic people with many ideas for improvements. Here again, as in Chile, we hear talk of "Fomento," and Paulistas are always ready to talk about what they have done and what they plan to do. "Nothing is too good for Paulistas, nothing in the world," is their belief.



Pan American World Airways System

A view of the waterfront of Rio and part of the famous Marine Driveway.

The city has fine government buildings, museums, colleges, schools, and many skyscrapers. Brazilians are doing pioneer work in fitting the ideas of modern building to the needs of people in hot countries. Air-conditioning and windows designed to avoid the direct rays of the sun are doing much to make people more comfortable.

São Paulo has many industries. Textile mills turn out cottons, rayons, and silks. It is interesting to note that mulberry trees are grown, silkworms are raised, and silk thread is spun, all in the state of São Paulo. There are meat-packing plants in the city, shoe fac-

São Paulo is a large, modern city with tall buildings and beautiful parks.

Brazilian Government Trade Bureau





Courtesy of Brazilian Traction

These boys are being trained to work for the São Paulo power company.

tories, clothing factories, cement plants, and a new industry making automobiles, trucks, and buses using, more and more, Brazilian steel, wood, leather, and rubber. The Butantan Institute provides an unusual industry. There poisonous snakes are raised and their poison is extracted to make serum.

Of particular interest to Canadians is the company which supplies São Paulo with telephones, light, and power. This company is owned by Canadians and run by Brazilians. Developing the hydro system here was a wonderful piece of work. Dams were built across two rivers which drain towards the Paraná. The water then filled two huge reservoirs, high enough to let it fall over the escarpment, a drop of over 2,000 feet. São Paulo now has the best hydro development in Brazil.

Santos · Santos is built on an island three miles from the open ocean, in the winding Santos Channel. Bridges connect it with the mainland. Like Veracruz, Guayaquil, and Barranquilla, the city was once dreaded for its heat and disease. Now it is a modern city, with wide streets, high buildings, green parks, and busy wharves.

Half the exports of Brazil pass out through the port of Santos, which serves as a seaport for São Paulo. Ships from many lands tie up at its wharves, and there are also smaller ships which carry goods to the ports along the coast. Coffee is the chief export. Many bananas are also sent out, as well as oranges, cotton, hides, and many other products. One part of the docks is what is known as a "free port." There, goods for Paraguay are unloaded and shipped out by train without the payment of customs duties. Why is this arrangement necessary?

Belo Horizonte · The capital of the state of Minas Gerais is planned on the most modern lines. It is on the plateau, surrounded by hills, and has space to grow. Its wide streets, parks, and gardens, and an artificial lake make it very attractive. As the centre of a mining area, close to cattle country, and with cheap hydro power, it is growing rapidly.

Brazilian Coffee

In the past Brazil has had one great business boom after another. At such times, the export of a single product brought wealth to many. The first was sugar cane, grown chiefly along the coast in the Northeast. The second was gold, in the state of Minas Gerais. Coffee was next, then came rubber and cotton.

Coffee was grown in many parts of Brazil, but the valley of the Paraíba River was one of the first to be planted on a large scale. From there coffee *fazendas*, or plantations, spread out over much of the plateau in Southeastern Brazil. The state of São Paulo is particularly noted for its coffee.

Many coffee growers made fortunes in the early days. Then the First World War broke out, and hard times followed it. Brazilians could not sell their coffee, and many lost everything they had. That taught the coffee growers a lesson, and today few depend on coffee alone. Cotton, corn, oranges, tobacco, and rice are also grown on most coffee fazendas, so that there is always some crop to sell if the others fail.

Why coffee grows so well in Brazil · There are several reasons why coffee grows well in Brazil. One of the chief reasons is that on the plateau there stretches a wide band of very deep, fertile red soil, which is called the *terra roxa*. This is well suited to coffee trees.

As you remember from Colombia, Mexico, and Central America, coffee seems to grow best at high altitudes. In Brazil there are large areas which are high, and at the same time fairly level, so that the precious soil is not all washed away down steep slopes.

Again, the climate is just right for coffee; there is enough rain, but there is also a dry season when the sky is clear and the sun hot.

In addition to all this, this part of Brazil now has a network of railways so that the coffee beans can be shipped to the ports, chiefly to Santos and Rio.

Caring for the coffee trees · Coffee trees need much care. The little plants are started from seeds in the nursery, and are not moved into the open until they are about eighteen months old. These young plants need protection from the sun. In Brazil they do not plant banana plants between the rows as they do in Colombia. Instead, they plant corn or upland rice. The workmen, many of whom originally came from Italy, hoe out the weeds and keep the soil clean.

After five years, the coffee trees are about twelve feet high. During flowering season, from September to December, the trees are very beautiful. Soon, among the shiny leaves, which are six to eight inches long, berries begin to appear. When these green berries turn yellow and then red in the bright sunshine, they are ready to be picked. Picking time is a busy time on a coffee fazenda, as all the berries are picked by hand. Whole families work in the fields until the harvest is over.

Not more than a pound of berries is picked from each tree. After the berries are cleaned



James Sawders

Coffee berries.

of any leaves and twigs, they are washed in tanks and spread on cement platforms to dry. Every day workers turn the beans over with rakes. As the drying process takes about two weeks, you can understand that clear, sunny weather is very important. If at this time there were rain every few days, the berries would spoil. When the weather report says that a shower is expected, the beans are raked into piles and covered.

The berries for export are not ground into coffee in Brazil; they are not even roasted there. That is done in the country where the coffee is to be used, so that none of the flavour is lost.

Coffee berries spread out to dry. Why is the weather important at this stage?

By Ewing Galloway, N. Y.





Brazilian Government Trade Bureau

Many of the large coffee fazendas have fine residences with beautiful gardens.

The importance of coffee · Not only does coffee give work to those who grow and prepare the berries for shipment, but it also employs many others in transporting the berries to the seacoast and loading them into ships. There are also the government inspectors who examine all coffee for export, and others who work in offices selling coffee to buyers from other countries.

At one time Brazilian coffee was burned in huge amounts because it could not be sold. Now scientists are trying to find new uses for coffee beans. To prevent too much coffee being grown, the government limits the number of trees which may be planted.

Mineral Wealth of the Southeast

Minas Gerais is one of the richest states in Brazil. Gold was discovered here in 1692. A gold rush developed, and for many years Brazil produced more gold than any other country. Some is still mined, but other minerals have now become more important.

Diamonds are of great importance. They have been mined now for more than two hundred years, and even yet stones of great value are discovered. Brazil also produces almost all the world's "black diamonds," used in industry for cutting and polishing.

Most of the quartz crystals in the world come from Minas Gerais. They are used in radios and microscopes.

Almost every known metal is found in Minas Gerais, as well as non-metals like bauxite and asbestos. Only coal is lacking—a serious matter. Some important minerals have still to be developed. The most important of these is iron. Brazil has one of the largest deposits of rich iron ore in the world. The chief mines are at Itabira, north of Belo Horizonte. Much of the iron is exported from the port of Vitoria, where modern docks have been built. Manganese, which is used to harden steel, is also found in large quantities.

Steel works of the Southeast · In the Paraíba Valley, ninety miles from Rio de Janeiro, is Brazil's national steel plant. It is very large, and produces both pig iron and about half the steel needed in the country. The plant is on one of the main railway lines in Brazil. It uses water from the Paraíba River. Some coal is brought from Santa Catarina in the south, and some is imported. By-products of the iron works are used in the manufacture of tar, ammonia, and mineral oils. A model town, Volta Redonda, has been built on a hill above the steel mills.

Aluminum works of the Southeast · Bauxite, the chief raw material used in making aluminum, is plentiful in the states of Minas Gerais and Goiás. Recently a large aluminum plant has been built in Minas Gerais, with the help of a Canadian company. This was the first aluminum plant in the world to be built where the bauxite is mined. Other raw materials needed are imported, the cryolite

from as far away as Greenland. Bauxite is also shipped to other plants in São Paulo and Buenos Aires.

THE SOUTH

This region contains the three states of Paraná, Santa Catarina, and Rio Grande do Sul. The climate of much of it is not tropical. It is a region of gently-sloping, forested hills and wide valleys. Here we find a way of life quite unlike that in the rest of the country.

The South has been settled mainly by people from central and southern Europe, chiefly Germans, Italians, and Poles. Many of these people speak the language of the countries of their birth, although they also speak Portuguese. Unlike the Spanish and Portuguese, these people felt at home in the forests. They knew how to care for them, and how to grow crops suited to hilly, forested country. They built houses of wood and brick, like those they had left in Europe. They raised crops of wheat and corn, tobacco and grapes. Most of the sheep of Brazil are found in this cool southern part of the country. Here, too, are the best cattle, most of them descended from European stock.

This is one of the most prosperous parts of Brazil. Except for the southern part of Rio Grande do Sul, the South was never laid out in great fazendas, and many of the farmers own their land. Recently it was discovered that coffee will grow well. Coffee growers from Southeastern Brazil and farmers from the dried-out Northeast are flocking into this region. It may well be that South Brazil will become the chief coffee-producing part of the country. Much of this activity centres around Londrina, in the state of Paraná.

The forests of the South · Many trees grow here that are not found in the rest of Brazil. The most important of these southern trees is the *Paraná pine*. Unlike most trees of the tropical forest, this tree can be used for building purposes. Pine lumber makes up most of the timber exported from Brazil.

Yerba maté is also plentiful in the south-

The iron and steel industry is becoming important in Brazil. The large national steel plant at Volta Redonda produces from Brazilian ore pig iron, steel, and valuable by-products.

C.I.A.A. Photo





Charles Perry Weimer, from Three Lions

A view of the city of Porto Alegre and its busy harbour.

ern forests, and Brazil provides almost half of all maté produced in South America. Much of this is sent to Argentina.

Porto Alegre · This city is the largest in South Brazil. It is situated where five river valleys meet, so that roads can spread inland in several directions. This makes the city an excellent marketing and distributing centre. Although the city is 170 miles from the ocean, at the head of the largest freshwater lake in Brazil, it is a port to which smaller ocean-going vessels can come. Rio Grande, on the coast, serves as its deep-sea port.

Porto Alegre is one of the few cities in Brazil to have coal nearby. Partly because of this, the city is an important industrial centre, with tanneries, wineries, and large woollen textile and clothing factories. Many of its people are of German and Italian descent.

THE WEST

This part of Brazil, containing the state of Goiás and the southern part of Mato Grosso, which means "great forest," is thinly settled. Much of it is still unexplored. Goiás has mineral wealth also. Nickel is found, and some of the finest quartz comes from this state. A railway built to the border of Bolivia, near to its oil fields, crosses southern Mato Grosso.

Goiânia · Travellers in Brazil are surprised to find this most modern and well-planned city in the midst of a wilderness. It is the capital city of the state of Goiás. With a fairly high altitude and a moderate amount of rain, it has a pleasant and healthful climate.

THE TRADE OF BRAZIL

The United States is Brazil's most important trading partner, with Great Britain and Argentina coming next on the list.

Brazilian trade with Canada is important to both countries. We import coffee, vegetable oils of many kinds, waxes, sisal, quartz, cacao, rice, and iron ore.

In return Canada sends such exports as usually go to South American countries: wheat, newsprint, machinery, salt codfish, lead, copper, manufactures of iron and steel, aluminum, asbestos, electrical goods, paints, fertilizers, chemicals, various manufactured articles, trucks, automobiles and tires, planes, and even ships.

BRAZIL'S PROBLEMS

In spite of all its wealth of agricultural and forest products, livestock, and minerals, Brazil has many problems to solve. However, solving problems is good for nations, just as it is for boys and girls. Here are some of its problems.

Lack of people · As in Canada, there are not yet enough people to do all the work that must be done to develop the country's wealth.

Lack of fuels · Brazil has small coal deposits in several places, but none are of high quality, and all are some distance from the main manufacturing centres. It is cheaper

for industries near the coast to import coal from Europe or North America than to use Brazilian coal.

Petroleum is also lacking, although it is believed to be present in the Amazon Valley. Within recent years wells have been sunk and some oil produced in the state of Bahia, not far from Salvador.

In most parts of Brazil, wood is used for fuel. Eucalyptus trees are often planted to supply this need. River boats and locomotives commonly burn wood.

Lack of good transportation · Someone has said that the railways in Brazil begin at the coast and end nowhere, and that the rivers begin nowhere and, with the exception of the Amazon, run in the wrong direction. Study a map to see what this means.

As in some parts of Canada, Brazil's railways run across country which is almost without people. This makes railway rates high. The escarpment, so near to the coastline on the east, also adds to the difficulty of building roads and railways.

Travel by air is without doubt one of the chief means of solving the transportation problem. Brazilians realize this, and are extending air services in all directions.

Poor health and poor education · Many of the people, particularly in the North and in the sertão of the Northeast, suffer from poor health and lack of education. You have already read that there are many tropical diseases. Some of these are deadly, but many merely reduce the strength of a person, so that he has no will to work. This is one of the chief reasons why in the tropics so little is done by one worker in a day. Another reason for lack of strength is the poor diet of thousands, probably millions, of Brazilians.

The tremendous task of education now being undertaken in Brazil is receiving help from the United Nations. Brazil is of such importance to the rest of the world, that every effort must be made to help its people make the most of their great country.

QUESTIONS TO ANSWER · **1.** What part of Brazil has rocks like those of our Laurentians?

Working on the São Paulo–Santos Highway. Brazil needs many more good roads.

Acme Photo



2. Why are Brazil's new steel works of such importance to the country as a whole?

3. What are the various reasons why coffee is the most important crop of Brazil?

4. Brazil has a large new aluminum plant in the state of Minas Gerais. Why is it unusual? Where are important aluminum works located in Canada?

5. Why do Indians in the Amazon Valley leave their little farms every few years and make a fresh clearing in the forest?

COMPARISONS TO MAKE · Compare (*a*) the Amazon and the St. Lawrence valleys; (*b*) Rio de Janeiro and Belém, as to size, surface features, climate, harbour, and products of the surrounding country; (*c*) the oasis of Mendoza with the tropical east coast of Brazil.

WOULD YOU KNOW WHERE TO GO? Where in Brazil would you go to find the following: cacao plantations, diamond mines, coconut groves, a large well-protected harbour, iron mines, large steel works, the most important Brazilian banana port?

CAN YOU EXPLAIN? **1.** Why life on the campos of Brazil is so uncertain.

2. Why cacao is grown on the northeast coast but not farther inland.

CAN YOU MATCH THESE · Which of the descriptions at the right goes best with each of the following places in the column at the left?

Manaus	*a*. A city protected by dykes.
Belém	*b*. A state where carnauba wax is produced.
Ceará	
Salvador	*c*. The largest city of Northeastern Brazil.
Recife	
	d. A city made rich by the rubber boom.
	e. A city in which public elevators connect two levels.

CHECK ON THESE MEANINGS · Use the following words in sentences to show that you understand their meanings: Paulistas, salt flats, wrapper leaves, escarpment, free port, terra roxa.

HOW ARE THESE USED? What uses are made of the following products: coconuts, carnauba wax, indigo, black (or industrial) diamonds, quartz, yerba maté, eucalyptus trees, mahogany.

EXPLANATIONS TO GIVE · **1.** Study the physical map and the map showing winds and rainfall, then explain why droughts so often plague herders and planters in the drier part of the Northeast—the sertão.

2. Cities do not grow equally well everywhere. By answering the following questions for each city named, try to discover what has led to the growth of Rio de Janeiro, São Paulo, Belém, Manaus, Porto Alegre, Salvador, Belo Horizonte, Goiânia, Recife.

(*a*) Is it on a good harbour?

(*b*) Is it at a natural stopping place on a navigable river?

(*c*) Has it plenty of room to grow?

(*d*) Is it where rivers or river valleys meet?

(*e*) Is it easily supplied with means of developing power—coal, oil, or water power?

(*f*) Is it at a convenient place for gathering and distributing goods?

(*g*) Are important agricultural, mineral, or forest products found nearby?

(*h*) Has it good means of transportation?

(*i*) Is it a seat of government, either state or federal?

(*j*) Has it any other good reason for growth?

Write down in a list the names of the cities given, and opposite each name, write the number of each question to which you can answer "Yes." The cities having the largest number of "points" are likely to be the largest cities.

SOMETHING TO DO · Make a list of the most important manufactures of Brazil. Opposite each write the name of the chief raw product used. In a third column, show, as nearly as you can, where each industry is located. Now reread pages 107–121 to see whether you have remembered everything. Some of you may prefer to show the same information on a map.

REMINDERS · **1.** Be sure to add to your map showing plantations all those you have read of in Brazil.

2. Are you remembering to keep your scrapbook up to date?

THE GUIANAS

These three countries, between northern Brazil and the Atlantic Ocean, are the only colonies remaining in South America. British Guiana, to the west, is the largest in both area and population. Surinam, or Dutch Guiana, is next, and French Guiana, in the east, is the smallest. The fact that they were hemmed in by mountains and deep forests was probably the reason why these colonies were never conquered by the Spaniards or Portuguese. Compared with the other countries of South America, the Guianas seem small, but British Guiana is about the size of Great Britain, and Surinam is about four times the size of the Netherlands.

Early history of the Guianas · The first settlement in the Guianas was made by the Dutch in 1596, in what is now British Guiana. Not long afterwards the first settlement in Surinam was made by an Englishman. Over and over again these two colonies changed hands. The strangest turn of fate came in 1667, when the Dutch accepted the English colony of Surinam in exchange for Manhattan Island, which was a Dutch colony. Manhattan Island, you remember, is the site of the great city of New York, while the whole colony of Surinam even today has a population of only about 216,000.

From sea to mountain tops · The three Guianas form a part of the Guiana Highlands, which are really a plateau. These highlands, like the Brazilian Highlands, are a region of very old, hard rocks. The steep front of the Guiana Highlands faces Brazil. The northern slope descends gradually, but in great "steps," towards the Atlantic.

Since the rainfall of the Guianas is heavy, there are many large rivers. These descend from one plateau level to the next, by falls and rapids. This makes river navigation most difficult, and in some cases impossible.

In the west of British Guiana is a table-like mountain, Roraima. The boundaries of three countries meet here. From a map, name these countries.

Three levels of vegetation · The Guianas have three levels of vegetation. Along the Atlantic coast is a low swampy plain enclosed behind sand bars. The soil, brought down by many rivers, is very fertile. In this coastal area are most of the plantations, the cities, and the greater part of the population.

The next level is largely covered with savanna. Forests grow along the streams and in the moist hollows of this rolling country. In this region most of the coffee is grown. Here, too, are small farms on which food crops are raised. Cattle feed on the best of the grasslands, and goats where coarse grasses and bushes are the only form of vegetation.

Higher still the land is forest-covered. Here people are few. Native Indians and what are called "bush Negroes" live by fishing and hunting, by working in lumber or mining camps, or by gathering forest prod-

One of the great sights of British Guiana is the Kaieteur Falls, almost five times the height of Niagara.

British Information Services





British Information Services

Heavy greenheart logs must be lashed to a boat to float them down the river.

ucts for export. One important forest product of all the Guianas is *balata*, a kind of rubber.

Guiana weather · Since the Guianas are very close to the equator, the weather is always hot and there are wet and dry seasons. Such a climate is difficult for white people to endure.

Along the coast a stiff breeze, brought by the trade winds from the Atlantic, makes conditions fairly comfortable and healthful.

British Guiana

Although British Guiana is the most important of the three colonies, its whole population is only about a third of that of the city of Montreal. About a quarter of all the people live in the capital city of Georgetown.

The coastal lowlands · It was fortunate for British Guiana that people from the Netherlands had spent some time there. These people, who had reclaimed much of their homeland, bit by bit, from the ocean, knew how to do the same thing in the New World. They built dykes and sea walls around the coastal lowlands in this South American colony, much like the dykes and walls we have in New Brunswick and Nova Scotia. Pumps run by windmills sucked the water off the enclosed marshy land. Then fresh water from the rivers was allowed to flood the salt flats. When the soil was "freshened," crops were planted in the rich soil. Gates in the dykes allow the river water to drain out at low tide, but close again when the tide comes in, so that the salt water cannot enter.

Sugar cane, the most important crop, is grown on this drained land. Much of the crop is made into brown sugar, molasses, and rum. These products form over half the exports of the country. Some of all three reach Canada, although much more goes to Britain.

Rice is the next crop in importance. British Guiana is one of the chief rice-growing countries in South America. Seed and methods of production are being improved, so that after the needs of the country are met a large amount of rice remains for export.

Other export crops are coconuts and citrus fruits, especially limes.

The highlands · Large numbers of cattle, many of them of the humped variety, are pastured on the savannas. Since good roads and railways are few, the cattle are driven to Georgetown "on the hoof," often as far as 150 miles. Hides are exported, and a packing plant has been built to supply the people with meat.

One important forest product is *greenheart*, a kind of tree found only in British Guiana. The wood is too heavy to float, but is much prized for making lock gates, wharves, and the keels of ships.

Minerals, too, are found in the highlands. Gold and diamonds have been mined for many years and are still found.

Bauxite is found in several places, the most important deposits being about seventy-five miles up the Demerara River. Bauxite, which looks much like clay, is found close to the surface. It is scooped up by great steam shovels. At Mackenzie, the bauxite is dried out and loaded onto ships for the long journey to Canada. These bauxite

SOUTH AMERICA

Statute miles

0 200 400 600 800 1,000 1,200

over 10,000′
3,000′-10,000′
1,000′-3,000′
0′-1,000′

★ Capitals of countries

NORTH AMERICA
GULF OF MEXICO
TROPIC OF CANCER
WEST INDIES
CARIBBEAN SEA
ATLANTIC OCEAN
PACIFIC OCEAN
CENTRAL AMERICA
PANAMA CANAL
G. of Panama
CURAÇAO (NETH.)
TRINIDAD (BR.)
Barranquilla
Cartagena
Maracaibo
L. Maracaibo
Valencia
La Guaira
★Caracas
VENEZUELA
Orinoco R.
Georgetown
Paramaribo
Cayenne
BRITISH GUIANA
GUIANA HIGHLANDS
SURINAM (NETH.)
FRENCH GUIANA
Medellín
Cauca R.
Magdalena R.
Bogotá
Buenaventura
Cali
COLOMBIA
EQUATOR
Negro R.
Belém
Amazon R.
Quito
ECUADOR
GALÁPAGOS IS. (ECUADOR)
Guayaquil
G. of Guayaquil
Iquitos
Manaus
Natal
Recife
Talara
Marañón R.
Ucayali R.
PERU
BOLIVIA
BRAZILIAN HIGHLANDS
Salvador
Lima
Callao
Cusco
L. Titicaca
La Paz
Arequipa
Matarani
Mollendo
Cochabamba
Santa Cruz
MATO GROSSO
Goiânia
Corumbá
Belo Horizonte
Vitória
Arica
Sucre
Potosí
Iquique
Chuquicamata
Antofagasta
Pilcomayo R.
Paraguay R.
PARAGUAY
Concepción
Asunción
Volta Redonda
São Paulo
Rio de Janeiro
Santos
TROPIC OF CAPRICORN
JUAN FERNANDEZ IS. (CHILE)
Tucumán
Parana R.
Uruguay R.
Porto Alegre
Rio Grande
Coquimbo
Santa Fé
Córdoba
Paraná
Mendoza
Rosario
URUGUAY
Valparaiso
Santiago
USPALLATA PASS
Buenos Aires
Montevideo
Río de la Plata
Concepción
Bahía Blanca
Valdivia
Puerto Montt
G. of Corcovado
Comodoro Rivadavia
FALKLAND IS. (BR.)
Strait of Magellan
Punta Arenas
TIERRA DEL FUEGO
CAPE HORN
SOUTH GEORGIA I. (BR.)
10°
20°
30°
40°
50°
90°
80°
70°
60°
50°
40°
30°



Courtesy of The Aluminum Company of Canada

Mining bauxite at a Canadian-owned mine in British Guiana.

mines are owned by the aluminum company which operates the plant at Arvida in Quebec. Canadian engineers and other workers live with their families at Mackenzie. Because many of these families may move back to Arvida some day, the school at Mackenzie follows the same course of study as the schools at Arvida. Perhaps as you are reading this book, a Canadian boy at Mackenzie is doing the same thing! Other bauxite mines ship their product to Britain and to the United States.

Georgetown · The capital of British Guiana, built at the mouth of the Demerara River, has a population of a little over 100,000. The city is actually below sea level, behind the sea wall, so that as one approaches it from the sea only the tops of trees and high buildings can be seen. The city has some large buildings, pleasant homes, clubs, and beautiful Botanical Gardens where palms of many kinds and other tropical trees and plants grow. Factories manufacturing the raw materials produced in the country give work to many people. Much has been done in recent years to improve sanitation, and malaria has been wiped out. A few good roads have been built from Georgetown, and there are two short railways running out from the city.

The people of British Guiana · British Guiana has a great variety of people. About half the population is descended from workers brought to the sugar plantations from the east coast of India. Negroes form the next largest group. In spite of the fact that this is a British colony, the majority of the white people are descended from Portuguese ancestors. There are also many Chinese, some of whom are traders.

Under new laws, the people of British Guiana have a large share in their own government, with a legislature elected by all the population.

Surinam

What has been said of British Guiana is largely true of Surinam. For this reason, we need only try to find the differences. Coffee is a more important crop than in British Guiana. Bauxite is mined, but most of the export is sent to the United States, which depends very largely on the Guianas for its supply.

The population of Surinam shows several differences. Naturally, there are more Dutch than English residents. Negroes form the largest single group, and there are numbers of Javanese brought by the Dutch from the island of Java in the Pacific, to work on the sugar plantations.

Paramaribo is the capital of Surinam. The colony was made self-governing in January, 1950. The Queen of the Netherlands appoints the Governor-General.

French Guiana

This colony has much the same products as the other two, but is smaller and poorly developed. The capital is Cayenne. For many years convicts from France were sent to the colony for imprisonment. The country is governed as a state or "department" of France.

VENEZUELA

A land of strange contrasts · The first permanent settlement in South America was made on the northern coast of Venezuela. Today Venezuela is in some ways the richest country in South America. This is chiefly because a tax is paid on all oil exported. This brings much money to the government.

In other ways Venezuela is backward. Many of its people are poor, and lack nourishing food. It is a country where orchids, diamonds, and gold are cheap, but where the cost of food and clothing is extremely high. It is a country with rich soil, yet its people are not raising enough food for their own needs. Let us take a closer look at this country, to see whether we can find the reasons for these strange contrasts.

MAP EXERCISES · **1.** On the map on page 125 follow the Andes Mountains from the Colombian border, east and north of Lake Maracaibo, then east along the northern coast to the island of Trinidad. Trinidad was at one time joined to South America. A sinking of this part of the coast left it an island.

Now find the part of Venezuela, about one half of the whole country, lying south and east of the Orinoco River. This is Venezuela's share of the Guiana Highlands. Much of this highland area is still almost empty of people.

2. Locate the Gulf of Venezuela, the Peninsula of Paraguana, the Gulf of Paria, and the Peninsula of Paria. The first two are important in connection with the oil industry and the last two with trade with Trinidad and the West Indies.

3. Follow the course of the Orinoco River from source to mouth. See how it seems to flow in every direction but south—northwest, north, and then northeast, winding around the base of the mountains. Notice its many tributaries. Examine the mouth of the Orinoco. How does it compare with the mouth of the La Plata?

4. Study the maps on pages 11 and 84, showing wind direction and rainfall. Why is rainfall higher on east-facing slopes? What reason can you give for the low rainfall along most of the north coast of Venezuela?

The Venezuelans

The Indians found by the early Spanish explorers belonged to the Carib and Arawak tribes. As was usual, those living in the highlands were strong and well-developed, while those living in the hot lowlands were weak and timid. Few pure-blooded Indians are left now. Some of these are in the Guiana Highlands and some in the lowlands west of Lake Maracaibo. Mestizos form the largest single group of the country. The white people are found chiefly in Caracas and the other cities of the Central Highlands, as well as in the oil fields and newer mining districts. The Negroes are chiefly along the coast.

The Regions of Venezuela

Venezuela has four different geographical regions—the Andean Highlands, the Maracaibo Lowlands, the Orinoco Plains or llanos, and the Guiana Highlands.

The Andean Highlands · These highlands, as you know, cover the west and north of the country. The Central Highlands, containing the three cities of Caracas, Maracay, and Valencia, form the most important part of this region and of the country as a whole. Most of the people live here, and this region has the best agricultural land and the largest number of industries. Many of the thin range cattle from the dry grasslands, or llanos, of the Orinoco are sent to be fattened on the rich pastures. Crops of sugar and cotton are grown in the fertile basins, while cacao and coffee are raised on east-facing mountain slopes. Coffee is the most important agricultural export. Like the variety raised in Colombia, it has a very mild flavour and brings a high price in the United



Thos. F. Lee, from Ewing Galloway, N.Y.

A farm high in the Andes. The ring in front of the house is the threshing floor.

States, where most of the crop is sold. Food crops of this area are corn, beans, rice, manioc, and bananas.

The Maracaibo Lowlands · This is the area of lowlands in the north, around Lake Maracaibo. Two prongs of the Andes almost encircle it, cutting off cooling and moisture-bearing breezes, so that the region is very hot and dry. The hill slopes are brown and bare in places, with little vegetation but cactus plants and scrubby bushes. Goat ranches and *divi-divi* trees, which are a source of tannin, supply important cash crops. In the southern part, cacao and sugar cane are grown, and coffee is raised on the mountains.

Oil flows through pipes into the waiting tankers at ports on Lake Maracaibo.

C.I.A.A. Photo



The chief feature of this region is Lake Maracaibo. It is a big lake, about 120 miles long and 60 miles wide. At the south end the water is fresh, but at the north, near the city of Maracaibo, it is quite salty. Salt water from the Caribbean comes in through the short river which connects the lake with the Gulf of Venezuela.

The Indian villages along the shores of the lake are interesting. The houses are built out over the water on "stilts." There is good reason for this. Such houses get any breeze that may be stirring and escape the flies and insects. They are easily kept clean too; the dirt falls down into the water between the cracks in the floor.

Oil is the product of greatest importance in the Maracaibo Lowlands. Oil is the source of Venezuela's wealth, and most of it is found in this region. From all over the country workers have flocked to the oil fields, deserting farms, plantations, and ranches. The result is that the country is not producing enough food to feed its own people. Since imported foods are very expensive, many people have to go without enough nourishing food. Most of the oil wells are centred around Lake Maracaibo—many of them are under the water—but some wells are found farther inland. The Mene Grande development is some distance inland.

The Ilanos of the Orinoco · This great region, as you have already learned, is chiefly cattle country; but it is not good cattle country, since floods and droughts make life too uncertain. However, so far, cattle-raising is the only use found for these vast plains. The cattle from the western part of the plains are sent to be fattened in the Valencia Lowlands, then on to the slaughter houses in Maracay. Those from the east are sent alive to the West Indies.

The only city, and the chief marketing centre of this great plain, is Ciudad Bolívar,

built at the first "narrows" on the Orinoco. Even here the river is a mile wide.

The Guiana Highlands · As you may guess, this region is much like the southern part of the Guianas. Much of it is made up of flat-topped plateaus rising in huge steps. Few people live here, but its great mineral wealth should bring many changes in years to come.

Minerals of Venezuela

No other country in Latin America depends so much upon its mineral wealth as does Venezuela. Most of these minerals are mined by foreign companies, chiefly from the United States and Britain, and are shipped out of the country.

Oil · You have already heard of the great oil fields of the Maracaibo Lowlands. These are not the only oil fields, although they are the most important. Others are being worked in the central and eastern highlands. From these, oil is piped to ports along the Caribbean Sea.

In some years oil makes up nine-tenths of the total value of the exports from Venezuela. Both crude and refined oil come to Canada, although the United States and Britain take most of the product. About a fifth of the oil is refined in Venezuela, and the government wants to increase this amount, to give more work to its people.

A visit to the oil fields at Lagunillas · Since oil is such an important product of Venezuela, let us visit the oil fields at Lagunillas, on the eastern shore of Lake Maracaibo. One of the engineers, Mr. Brown, has arranged to take us across the lake from Maracaibo to Lagunillas and show us around.

We make an early morning start. Mr. Brown is using a large motor boat, and under the canvas top we are comfortable, even though the sun is soon up.



Three Lions

A typical little village along the highway in western Venezuela.

"You wouldn't be happy here later in the day, though," says our friend. "The northern part of Venezuela, and particularly the Maracaibo Lowlands, have the highest average yearly temperature in Latin America."

As we cross the lake Mr. Brown has time to tell us something about the way oil fields are operated.

"First," he says, "the well must be drilled. A long steel tube with a *bit*, or cutting tool, on the end, is driven down hundreds, often thousands, of feet into the ground. Many of the wells at Lagunillas are beneath the water of the lake. In some wells the oil rises of its own accord, in others gas has to be pumped down to drive it up. The wells are placed about 1,000 feet apart. There are over 600 producing wells, and they say there are over a thousand miles of pipeline beneath the surface of the lake."

Long before we reach the shore, we can see the forest of derricks rising high above the still water. When we reach the first of these we are still a long way from shore—eight miles, Mr. Brown tells us. Not only are the derricks in the water, but buildings, platforms, tanks, and pipes are scattered about on stilts, just like the houses in the Indian villages.



Standard Oil Co. (N. J.)

Oil derricks in Lake Maracaibo.

When we land at the company's wharf, Mr. Brown says he will take us first to the building where the crude oil from the wells is treated to remove the gas. Then we see where the gasoline is extracted from the gas, and the remaining "dry gas" is returned to the wells under pressure, to drive up more crude oil.

It is all very interesting, but we are glad when Mr. Brown says, "You have had enough." The blazing sun, the smell of oil, the confusion of buildings, pipelines, and power lines make us happy to get away. On the way back, Mr. Brown tells us more about the oil.

"The crude oil that is not refined at Lagunillas is carried to refineries on the Paraguana Peninsula to the east of the Gulf of Venezuela, and to others on the islands of Aruba and Curaçao. Foreign companies own and run the oil fields and many of the refineries, and ship out of the country all the products that Venezuelans do not use. Taxes paid by oil companies have helped to pay off the country's debts, to improve its ports, and to build schools, hospitals, and roads."

Diamonds and gold · Diamonds have been found in widely scattered places in the Guiana Highlands, but chiefly in the southeast. Most of these are of the black, industrial variety.

Gold has been mined since the days of the Spaniards. The most important modern mines are at El Callao. The gold is either sent out by boat down the Orinoco River, or by plane to one of the Caribbean ports.

Iron · What may become an extremely valuable mineral find in the country has still scarcely been touched. This is the deposit of iron in the Cerro Bolívar, south of the city of Ciudad Bolívar. Here, in ancient rocks, much like those of the Laurentian Uplands, iron is found as it has been in Quebec and Labrador. The Venezuelan and Canadian iron deposits have much in common. Both mining regions are far from centres of population. In both, the greatest problem is how to bring out the ore. In one, engineers have to struggle with heat and a tangle of tropical vegetation; in the other, the problem is extreme cold in winter. One lies within seven degrees of the equator; the

other lies within twelve degrees of the Arctic Circle. In spite of all difficulties, iron will be mined and brought out of the wilderness so long as industry demands steel for its machines. Already Venezuelan iron is reaching steel plants in Baltimore in the United States. When the channel of the Lower Orinoco is dredged to allow large ore boats to enter, the amount of iron to be shipped out will be greatly increased.

Asphalt · On the mainland, opposite Trinidad, lies the Bermudez pitch lake, one of the largest deposits of asphalt in the world.

Pearls · Pearls are gathered in large numbers off the shores of the island of Margarita.

Manufacturing in Venezuela

Manufacturing in Venezuela is still very little developed, and most of it is centred in the cities of Caracas, Maracay, and Valencia. Except for paper mills in Maracay, the manufacturing industries use raw materials grown in the country, such as cotton, sisal hemp, tobacco, sugar cane, hides and skins, milk, and cream. However, not enough raw materials are raised in the country to supply all its factories, and additional quantities of raw products such as cotton, sugar, and tobacco must be imported, as well as many manufactured articles.

Transportation

Lack of proper roads and railways is another of the problems of the country. Most of the railways have been built by foreign companies to bring raw products to the coast, not to serve the needs of the whole country.

Roads are being built by the government. A few are fine paved highways, but most are dirt roads, many of which cannot be used during the rainy season. A large part of the country has no roads at all.

The Orinoco River is navigable for about 1,000 miles inland, but sometimes navigation is difficult because of many sandbars and because the river floods in the rainy season. Falls or rapids block traffic on most of its tributaries. Steamship lines connect ports along the north coast, and carry goods from the Lower Orinoco.

As in most of South America, aeroplane travel and transport are very important.

The Cities of Venezuela

Caracas · Like many other Andean cities, Caracas is built in a mountain basin. The city was founded in 1567, and still has many narrow streets and Spanish-style houses and churches.

Because it is the capital of the republic of Venezuela, there are many government buildings. It is also a cultural centre, with a large university, museum, and library. The birthplace of Simón Bolívar is kept as a shrine, and his name is found on squares and parks and public buildings.

Orchids are an unusual export item of Caracas. These beautiful flowers seem to be as plentiful there as zinnias and petunias are in Canada. Many different varieties are to be seen in the parks, gardens, and shops.

A view of Caracas from the side of one of the surrounding hills.

By Ewing Galloway, N. Y





Pan American World Airways System

The port of La Guaira, nestling between the mountains and the sea.

Orchids grow in trees; where the trees are close together, they blossom on the treetops, for they must have light and air. They are not parasites, for they do not take their food from the tree which supports them. Their roots, instead of being in the ground, hang in the air. Through them the plants feed on gases and moisture in the air. Some of the orchids are sold locally, but most are exported, chiefly to the United States. Until a few years ago, the whole plant was exported. Now the stem of each blossom is sealed in a glass or rubber tube filled with water, and the flowers are sent by plane. In this way they arrive in excellent condition.

Maracaibo · Maracaibo, on the shore of Lake Maracaibo, is the centre of the oil-producing district of Venezuela and its chief oil port. Before the oil boom began in 1918, it was a sleepy Spanish town, and some of the old houses and churches still remain. Today it is a large city, with an unusual amount of bustle for a tropical place. Most of its buildings are quite new. People of many shades of black and white and brown are seen in its streets, and much English is heard as well as Spanish, since most of the business of the oil companies is carried on in this city. The wharves are busy places, with their oil tanks, and boats of all shapes and sizes. The river outlet to the sea used to be shallow, so that large tankers or other ships could not reach the city's docks. Now the channel has been dredged to a depth of twenty-five feet, so that all but the largest ocean-going ships can enter. Tankers from Montreal and other Canadian ports can now load crude oil there for shipment to Canadian refineries. Oil is the most important export shipped from Maracaibo, but it is not the only thing. Goat skins, tannin, cacao, sugar cane, and coffee from the surrounding district go out through this port, as well as some coffee from Colombia.

Valencia · Valencia was built by the Spaniards, and many of the old buildings remain. It is now the third largest city of the republic, and has a number of manufacturing industries.

Maracay · Maracay has beautiful parks and a large, elaborate hotel. It is not a pleasure resort only, however. It has large slaughter houses, creameries, textile industries, paper mills, and shoe factories.

Barquisimeto · This city has grown because it is a gateway to both the northern highlands and the southern plains. As the products of these regions are so different, a lively trade has grown up.

An important industry in Barquisimeto is the making of hammocks. Many of the people of Venezuela, outside of the cities and towns, sleep in hammocks. A hammock is cheap and lasts a long time, and it is easy to keep clean and to move about. A person in a hammock, with a mosquito net covering him, is safe from insects and snakes.

La Guaira · The port of La Guaira, between the Caribbean Sea and the towering mountains, reminds one somewhat of Valparaiso in Chile. Here, however, there is no wide sweeping harbour, only a shelter behind a protecting breakwater. In spite of this,

La Guaira handles most of Venezuela's import trade.

La Guaira is actually only nine miles from Caracas, but by road it is twenty-one miles, and by railway still farther. The road is the most costly road per mile in the world, they say, and the number of bridges, sharp curves, and terraces cut out along the mountain slopes makes this claim believable.

GOOD-BYE TO SOUTH AMERICA

Now, at La Guaira, we are once more facing north, looking out over the blue waters of the Caribbean towards Canada and home. We have heard many times of the "Good Neighbour Policy." Let us carry with us the memory of the kindly people of Latin America, and a better understanding of their problems.

A REVIEW

SOME QUESTIONS TO ANSWER · **1.** Guiana means "watered country." Is this Indian name a good one? Give reasons for your answer.

2. Why are pastures around Lake Valencia better than those in the llanos of the Orinoco? What use is made of these better pastures?

3. Why does a city grow when it is situated where goods from two different regions are exchanged. Name such a city in Venezuela.

4. Why is the road between La Guaira and Caracas the most costly in the world? Where else in South America are there other costly roads? Why must roads be built in spite of cost?

DO YOU KNOW THE MEANING OF THESE WORDS? Use the following words in sentences to prove that you understand what they mean: balata, greenheart, manioc, by-products.

REASONS TO GIVE · (There are several reasons in each case.) **1.** Why is iron ore shipped out of Venezuela instead of being made into steel within the country?

2. Why is navigation on the Orinoco difficult? On what other rivers of South America is the same difficulty met?

3. Why is little manufacturing carried on in Venezuela?

A TOPIC FOR DISCUSSION · Venezuela's problem of feeding its people.

A STORY TO WRITE · Pretend that you are a deck-hand on a ship loading bauxite at Mackenzie in British Guiana. Write a description of your trip and what you see on the way to Port Alfred on the Saguenay River in Quebec. You will need to study maps and pictures to help you. Draw a map to show your route.

REPORTS TO GIVE · Prepare a report on one of these topics, using your text and other reference books or magazines to help you.

1. The oil industry of Venezuela.

2. The transportation system of Venezuela.

A TOPIC FOR DISCUSSION · Discuss the differences in vegetation, and so in occupation, as you cross South America from west to east along the equator. Before you begin your discussion, study the maps showing elevation, climate, and vegetation.

SOME THINGS TO DO · **1.** On a map find the height of land between the tributaries of the Amazon and the tributaries of the Orinoco.

2. Add pictures of Venezuela and the Guianas to your scrapbook.

3. Reread the section on Venezuela. As you do so, list the various problems which face the people of this country. To these add lack of education and poor sanitation.

Much is being done by the government with the help of various world organizations. By law, education is free and compulsory, but there are not enough schools nor enough teachers to carry out the law. Buses carrying a teacher and school equipment travel through the rural districts. Health units carrying doctors and nurses, and agricultural units carrying trained farmers, do the same thing.

While oil and iron ore and other minerals of Venezuela remain, the government will have money to spend. Before the minerals are used up, other ways of making a living must be found, so as to bring a better way of life to all the people.

VIII · Antarctica



British Information Services

A party of explorers camp on the trail in the Antarctic.

LANDS NEAR THE SOUTH POLE

To the Antarctic · Every autumn whaling ships leave Norway, Britain, and other European countries, bound for the Antarctic, or south polar region. They sail through tropical waters near the equator and then southward beyond the Cape of Good Hope and Cape Horn to the cold and stormy seas of the far south. It is a voyage filled with danger. The ships may have to make their way through miles of drifting ice-floes. A careful lookout for icebergs is needed.

THE POLAR REGIONS

The Arctic · We know from reading *Canada and Her Neighbours* that north of the settled parts of Canada is a large area with long, cold winters and very short summers—a region where no trees grow. This is the home of the Eskimos and a few other Canadians who have gone there as traders, missionaries, scientists, or airmen. Still north of these arctic lands is the Arctic Sea, a large body of water with land masses grouped around it. Find the Arctic Sea on the map on page 136 and then find the north pole in the midst of it.

The Antarctic · At the opposite part of the world from the Arctic is the Antarctic (*ant-* means *opposite*, and so the whole word means *opposite to the north*). It is quite different from the Arctic, for it is largely a region of land surrounded by seas. Here is Antarctica, a continent about two-thirds as large as North America. Near the centre of this continent is the south pole.

THE ANTARCTIC CONTINENT

A stormy plateau · Most of Antarctica is a high plateau, at least 7,000 feet above sea level. There are several high, rugged mountain ranges—higher than the Canadian Rockies. Some of these mountains are active, steaming volcanoes.

The mainland of Antarctica is almost entirely covered by a huge sheet of ice a thousand feet or more thick. This ice moves continuously but very slowly down to the sea, and extends out over the edge of the land to form a "shelf" of ice around the continent. In one place this great wall of shelf ice is 400 miles wide where it floats upon the sea. Some of this ice is very thick; its cliffs are often 100 feet high. From this huge mass enormous sections break off and float away as icebergs—some of them as much as forty miles long. These icebergs, and ice-floes about six feet thick, choke the surrounding sea, forming a wide belt of pack-ice around much of the continent.

A MAP EXERCISE · Look at the coloured map on page 137. Find on it South America, Africa, and Australia. Then locate Antarctica in the centre. Is the south pole marked on the map?

A cold, stormy region · The weather is usually bad in the Antarctic. Fierce storms and blizzards sweep across the land, with winds sometimes blowing at more than 100 miles an hour. This makes it hard to work and travel. The sun is above the horizon for a long period in summer, just as it is in the far north. In winter the sun does not appear at all, and so there is a long period of darkness, lighted only by the moon and stars, and by the brilliant southern lights.

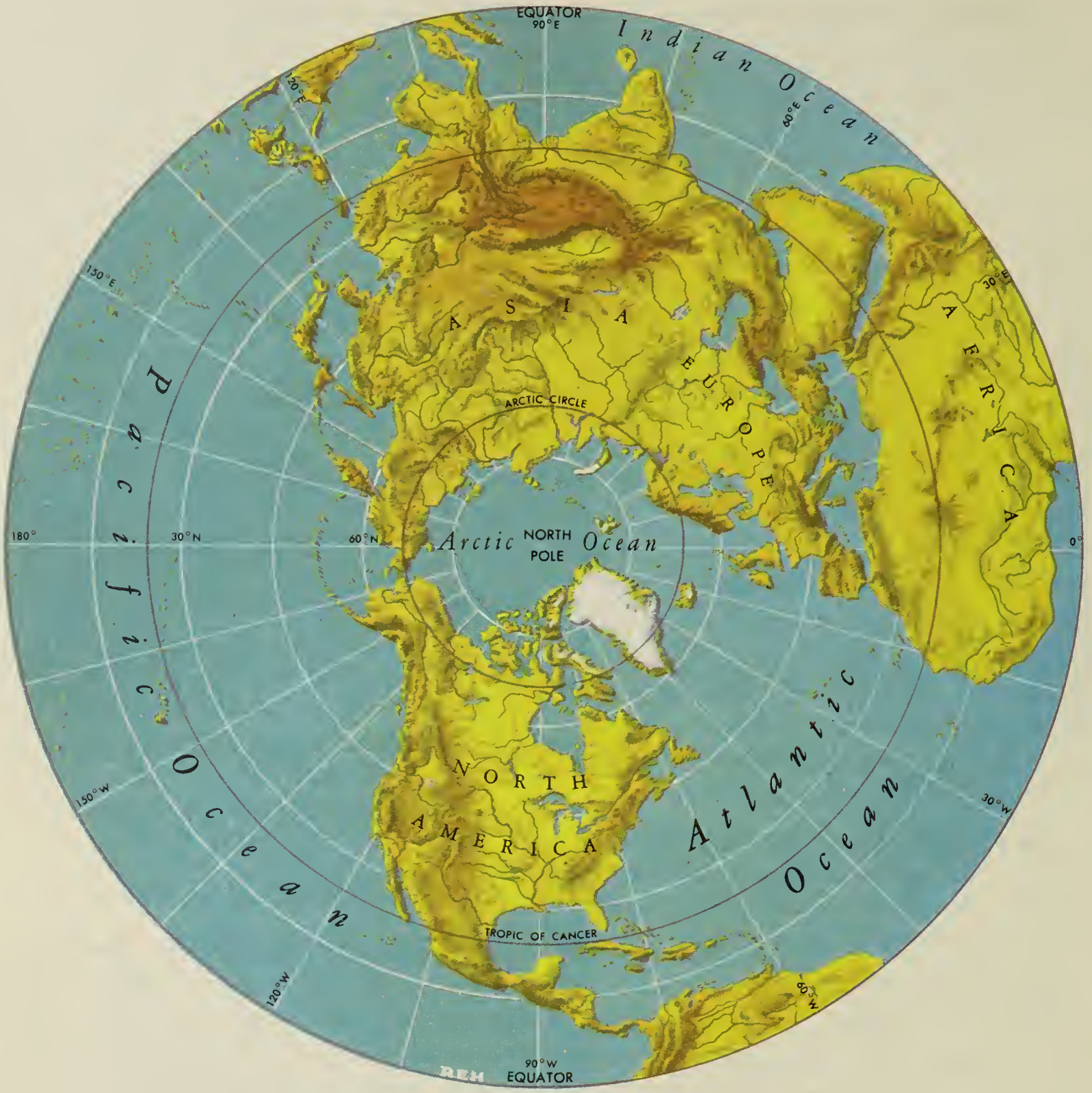
During the long summer days there is enough light for whalers, scientists, and explorers to work throughout the twenty-four hours. In winter, the cold, storms, and darkness make outdoor work almost impossible.

Wild life in the Antarctic · We already know that in the far north of Canada there are animals such as caribou, muskox, polar bears, foxes, and hares, even where it is very cold. There are no such animals on the Antarctic continent, and no native people live there. Few plants are able to grow, only some kinds of mosses and *lichens*, small, dry, gray or yellow plants which cling to the few bare rocks. Men cannot make a living in such a cold, barren land. Yet in the seas which surround the continent there are many fishes and animals, of which the most valuable are the seals and whales.

Along the edge of the land are millions of birds which make their homes on the rocky cliffs or the edges of the land ice. Penguins and gulls are the most common. Several kinds of penguins are found in the southern hemisphere. They are birds which cannot fly, but which swim very well in the sea. On land they stand upright and waddle about on their broad feet. Most of the penguins leave for the north in the autumn.

EXPLORING THE ANTARCTIC

Famous antarctic explorers · Many famous explorers and scientists have worked in the antarctic regions. Captain Cook, about whom you will read more in the next chapter, first sailed for long distances in the antarctic seas 180 years ago. In this century Sir Ernest Shackleton travelled across the shelf ice and part of the high plateau until, less than 100 miles from the south pole, he had to turn back. First to reach the south pole was Captain Roald Amundsen, who had also explored in northern Canada. He made the dangerous journey using dog sleds and skis and returned safely. Shortly after Amundsen, another famous explorer, Captain Robert F. Scott, reached the south pole with four companions. However, all



The northern hemisphere.

died on the return journey, from cold and lack of proper food.

There have been several large recent expeditions, including the well-known ones led by Admiral Richard E. Byrd. On one of these an aeroplane was flown for the first time over the south pole.

Why men go to the Antarctic · Why do men go to the Antarctic? A few go for adventure. There are some men to whom an unknown region offers a challenge. Others are interested in discovering the truth about nature. These are the scientists who go to study animals, the weather, rocks, or the southern lights. At one time most of Canada and a large part of Europe were covered by a thick sheet of ice. This was during the ice age. The Antarctic is still in the ice age and scientists visit it to see what Canada used to look like long ago. Still other men are busily occupied



The southern hemisphere.

making maps. But most of the men who go to the far south are whalers.

ANTARCTIC RESOURCES

Modern whalers · At one time hundreds of ships visited the far south to catch seals. Today they go there in search of whales.

Whales are really giant animals which have taken to living in the sea. While they swim well and dive to great depths, they must come to the surface to breathe. Most of those in antarctic waters feed on tiny creatures floating about near the surface of the water. There are several quite different kinds of whales. The blue whale is the largest of them all; in fact, it is the largest animal in the world. Some blue whales grow to be more than a hundred feet long, and weigh many tons!

Thousands of men visit the antarctic seas every year to hunt whales. Some now use aeroplanes and radar to locate the huge animals. Because of this there is a danger that too many may be killed. Governments have now agreed that they will not allow more than a certain number to be killed each year, so as to leave enough for the future.

To capture the whales, the men go out from the big ship in smaller steamers about 120 feet long, called *catchers*. The animals are shot with a heavy harpoon from a gun on the bow of the catcher. The dead whale is drawn through a large hole in the stern of the factory ship to the deck inside. Such a ship may be as large as an average ocean liner. Sometimes the whales are towed instead to a factory set up on shore. Men use long steel "flensing" knives to strip off the blubber, or fat, and cut it into pieces to be melted down in large tanks. Even the bone is cut up and boiled to take the oil out of it. The flesh is also valuable. Some of it is used to feed the men who work in the factories and ships. Still more is cooked and canned, or frozen, and shipped to Europe for food. Nothing is wasted. Whale oil is valuable for many reasons. Most of it is used in making margarine, soap, and glycerine.

Minerals · You may have read in the newspaper about valuable minerals being found in Antarctica. There is coal there, and perhaps other minerals. No one is likely to go to such a distant, cold, and stormy land to mine coal when there is far more of it nearer home. The same is true of other minerals. The most valuable product of the Antarctic is still whale oil.

Weather · Weather is another "export" from Antarctica. The weather of Australia, New Zealand, South Africa, and South America is due partly to the cold air that sweeps down off the polar plateau and across the southern seas. To study how this air moves, there must be weather stations in this region, manned by scientists. There are now several weather stations there. If aeroplanes ever fly regularly from Australia to South America across the south pole, such stations will be a great help to them.

SOME QUESTIONS TO DISCUSS · **1.** You have read that there are no native people such as Eskimos in the Antarctic. Does this make it harder for explorers to travel there?

2. The Norwegian Broadcasting Corporation sends programs of news and music to the Antarctic from November to March. Why is this done?

3. One book about Antarctica is called *The Home of the Blizzard*. What is a blizzard? Is this a good name for a book about Antarctica?

SOMETHING TO DO · **1.** Write a short story about a day on a modern whale factory ship.

2. Read reference books to learn more about these Antarctic explorers: Admiral Bellingshausen, Captain Roald Amundsen, Sir Ernest Shackleton, Captain Robert F. Scott, Admiral Richard E. Byrd, Sir Douglas Mawson, Professor Griffith Taylor, Commander Herbert Hollick-Kenyon.

3. Make two lists, one headed *Arctic* and the other headed *Antarctic*. In each list write what you know about these regions, arranged in columns under the headings.

Arctic

North pole. Ice-covered sea. Polar sea, surrounded by land. Eskimos live there. Land animals, caribou, fox, . . .

Antarctic

South pole. High land. Polar land, surrounded by sea. No one lives there all the time. No land animals. . . .

A MOVIE TO SEE · Several good movies have been made about exploring Antarctica. The first of them was taken on the Scott Expedition in 1910–1911. You will probably not be able to see that one, but a fine modern film about the same expedition is "Scott of the Antarctic." Another recent film, this time about a large modern expedition, is "The Secret Land."

IX · Islands of the Pacific



British Information Services

Suva harbour, in the Fiji Islands, is one of the largest harbours in the Pacific.

LEARNING ABOUT THE PACIFIC

A VAST OCEAN

Our next journey will be across the Pacific Ocean by air from Canada to Australia. Before leaving Vancouver airport on our long flight westward, let us first learn what we can about the ocean and the islands we shall visit on our trip.

The Pacific Ocean is the largest and deepest of the world's oceans. An aeroplane flying across it at the widest point, from the Panama Canal on one side to Singapore on the other, travels almost halfway around the globe. This ocean is larger than all the land areas of the world put together. It covers one-third of the surface of the earth. Scattered throughout this area there are many hundreds of islands, perhaps as many as 2,500, most of them small and far apart.

SOMETHING TO DO · Look at the maps on pages 2 and 125 and list the countries in North and South America which have a Pacific coastline. Begin by counting Alaska as one of them.

DISCOVERING THE PACIFIC OCEAN

Although the Pacific Ocean is so large and covers so much of the earth's surface, no European had crossed it until about 450 years ago.

Westward to the Pacific · Columbus was the first to lead the way to the Pacific by sailing westward. When he set out from Europe in 1492 to find the Orient, he discovered the

West Indies and thought that he had reached his goal.

Although Columbus did not discover the Pacific, his voyage encouraged others to sail westward. Balboa, a Spanish explorer, followed his lead across the Atlantic, crossed the isthmus at Panama, and stood on the shore looking out across what became known as the Pacific, or peaceful, Ocean.

Eastward to the Pacific · Meanwhile, a couple of years before Balboa set sail, some Portuguese traders found their way to the Spice Islands. (Today we call them the Moluccas.) They had done so by going around South Africa and eastward across the Indian Ocean. These Spice Islands were also on the shore of the Pacific Ocean.

On opposite shores · The Portuguese on the Spice Islands and the Spaniards at Panama were on opposite sides of the great ocean—but they were 10,000 miles apart! Someone had yet to be the first to cross it.

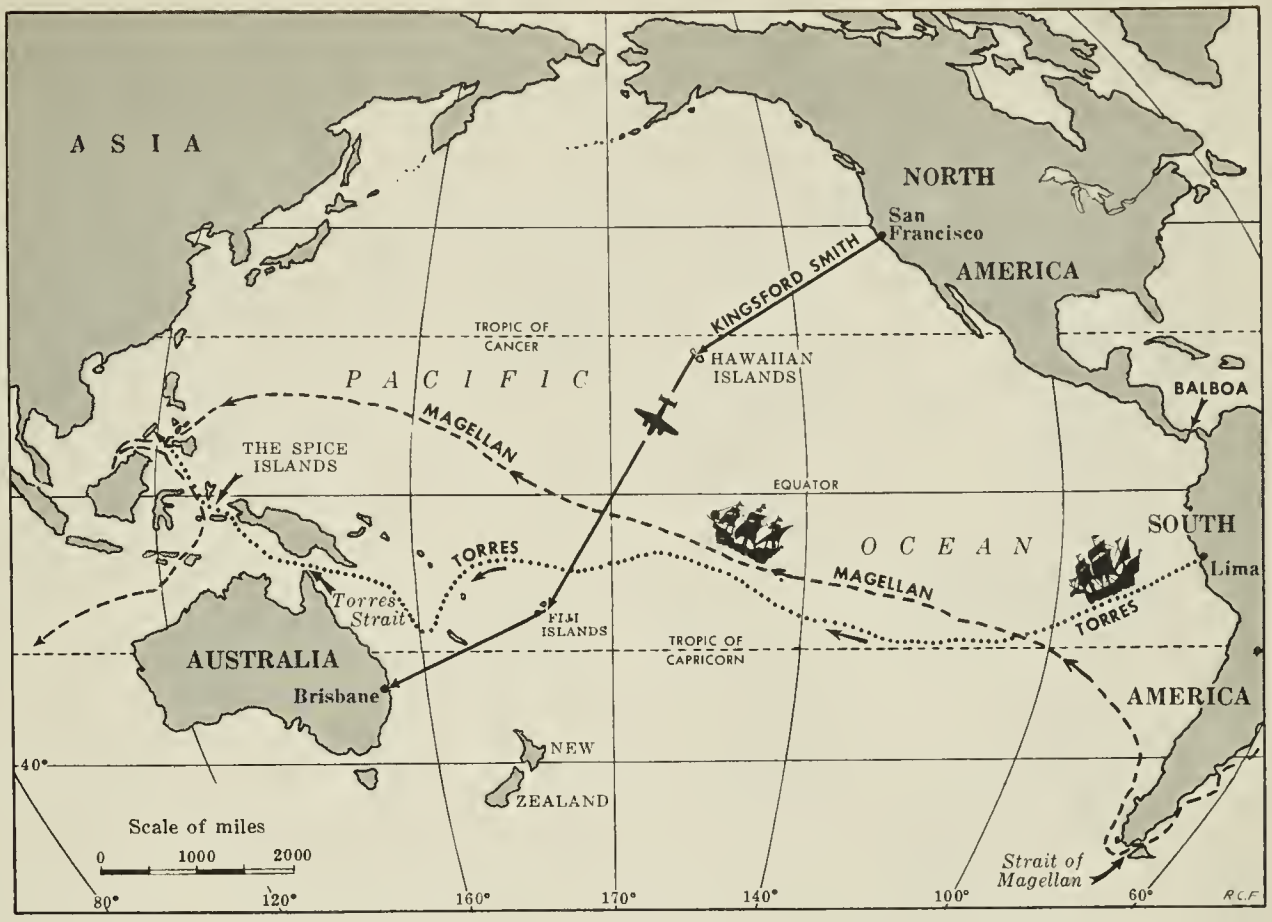
First across the Pacific · At last, in 1519, Ferdinand Magellan, a Portuguese explorer in the service of Spain, ventured across the unknown waters of the Pacific. With five small ships and a crew of 270 men, he set out in August, 1519, westward across the Atlantic. When he reached South America he sailed along the eastern coast until, at the far southern tip of the continent, he discovered a way from the Atlantic to the Pacific. This was the gloomy, storm-tossed strait which is named after him. After sailing out onto the Pacific Ocean, he turned northwest. His ships cruised for four months and saw no land except two small desert islands. Many of his men died of starvation and sickness before he reached the Philippine Islands, not far from the Spice Islands. There he himself was killed by unfriendly natives. When the thirty-one surviving members of his crew arrived home at Seville, in Spain, after being away for three years, they had sailed around the world. Later Spaniards from South America regularly sailed west and east across the Pacific, trading with the Philippines.

A Pacific pioneer · Although a route across the Pacific had been discovered, not much was known about the ocean itself and the lands within it. Stories grew up of strange lands rich with natural resources.

One remarkable man cleared up many of the mysteries about the world's largest ocean. He was Captain James Cook, who made three famous voyages to the Pacific. He crossed and recrossed the Pacific from the coast of Canada to Australia and New Zealand, and from Point Barrow in northern Alaska to the ice-floes of Antarctica.

Captain Cook and the scientists who sailed with him worked so hard and were so skilful that in less than ten years they made the map of the Pacific look much as it does today. Among the islands they discovered was the Hawaiian group. Cook also proved that there was no rich "Great South Land," as many supposed, but he believed that there might be an ice-covered land around the south pole. (In this, as we know, he was quite right.) Because of his discoveries, Australia and New Zealand were settled by people from Britain.

Modern pioneers · Many other travellers have filled in the gaps in our knowledge of the Pacific Ocean left by Captain Cook and other early explorers. A modern pioneer of the Pacific crossed the ocean 400 years after Magellan. He was the Australian, Captain Kingsford Smith, who flew the first aeroplane from North America to Australia. His trip across the Pacific took only ten days, as compared to nearly a hundred days taken by Magellan to cover about the same distance. The map on page 141 shows the four places at which Kingsford Smith called on his flight. Today Canadian airliners regularly fly from Vancouver to Sydney in a few days.



Routes followed by Magellan, Torres, and Kingsford Smith across the Pacific.

A LOOK AT THE MAP · **1.** The map above shows the route Magellan followed when he crossed the Pacific Ocean from the Strait of Magellan to the Philippine Islands. Use the scale at the bottom of the map to measure how many miles he travelled. You can read more about this journey in reference books, under the heading "Magellan."

2. The map on this page also has a line on it marked with the name *Torres*. Luis Vaez de Torres led an expedition from Peru to the Philippines in 1605 (about the time when Champlain founded Quebec). On the map look north of Australia and find Torres Strait which he discovered.

A DISCUSSION ABOUT CAPTAIN COOK · You can read in reference books, under the name "Captain James Cook," many interesting and exciting stories about this explorer. Choose topics like the following for class discussion or for reports to the class:

1. Cook's boyhood among sailors in England.
2. How Cook made a new map of the lower St. Lawrence River.
3. On long voyages, sailors often died of a disease called scurvy, which we now know was caused by lack of vitamins. Captain Cook's men remained healthy because, whenever possible, he made them eat fresh meat, fruit, and green vegetables. You might discuss why this was so. Your health text should help you.
4. Cook found the Sandwich Islands, now known as the Hawaiian Islands. Tell the story of his discoveries there and how he lost his life.

MORE EXPLORERS TO READ ABOUT · Find out what you can about the discoveries of one of these explorers of the Pacific Ocean: Luis Vaez de Torres; Fernandez de Quirós; Francis Pelsart; Abel Tasman; Sir Francis Drake; La Pérouse, who once captured Fort Prince of Wales at Churchill, Manitoba, from Samuel Hearne; Sir James Ross; Captain George Vancouver; Vitus Bering, a Dane who worked for the Czar of Russia.

PACIFIC WINDS AND CURRENTS

Using the winds · The Spanish traders who sailed between America and the Philippines 350 years ago, found winds which would drive their ships both east and west. Early explorers of the Pacific like Magellan and Cook had to understand the winds very well in order to sail to and fro on this great ocean.

CHINA
Vladivostok
KOREA
SEA OF JAPAN
EAST CHINA SEA
Shanghai
Hong Kong
INDO-SOUTH CHINA SEA
Manila
PHILIPPINES
MALAYA
Singapore
Jakarta
BORNEO
CELEBES
INDONESIA
Tokyo
JAPAN
TROPIC OF CANCER
MARIANAS (U.S. TRUST) IS.
GUAM (U.S.)
WAKE I. (U.S.)
CAROLINE ISLANDS (U.S. TRUST)
EQUATOR
BISMARCK ARCH. (AUS.)
NEW GUINEA
Torres Str.
AUSTRALIA
MARSHALL ISLANDS (U.S. TRUST)
SOLOMON IS. (BR.)
GILBERT ISLANDS (BR.)
ELLICE IS. (BR.)
NEW CALEDONIA (FR.)
NEW HEBRIDES (BR.-FR.)
FIJI IS. (BR.)
Suva
TROPIC OF CAPRICORN
TONGA IS. (BR.)
SAMOA (N.Z.)
Sydney
TASMAN SEA
NEW ZEALAND
INDIAN OCEAN
PACIFIC OCEAN
120°
130°
140°
150°
160°
170°
180°
10°
20°
30°

S.

R.

70°

PT. BARROW

Bering Str.

ALASKA
(U.S.)

60°

BERING
SEA

ALEUTIAN ISLANDS

50°

CANADA

Vancouver
Victoria
Seattle

UNITED
STATES

40°

San Francisco

PACIFIC

30°

MIDWAY I.
(U.S.)

HA'WAIIAN
(U.S.) ISLANDS

TROPIC OF CANCER

Honolulu

N

PALMYRA I.
(U.S.)

120°

130°

160°

150°

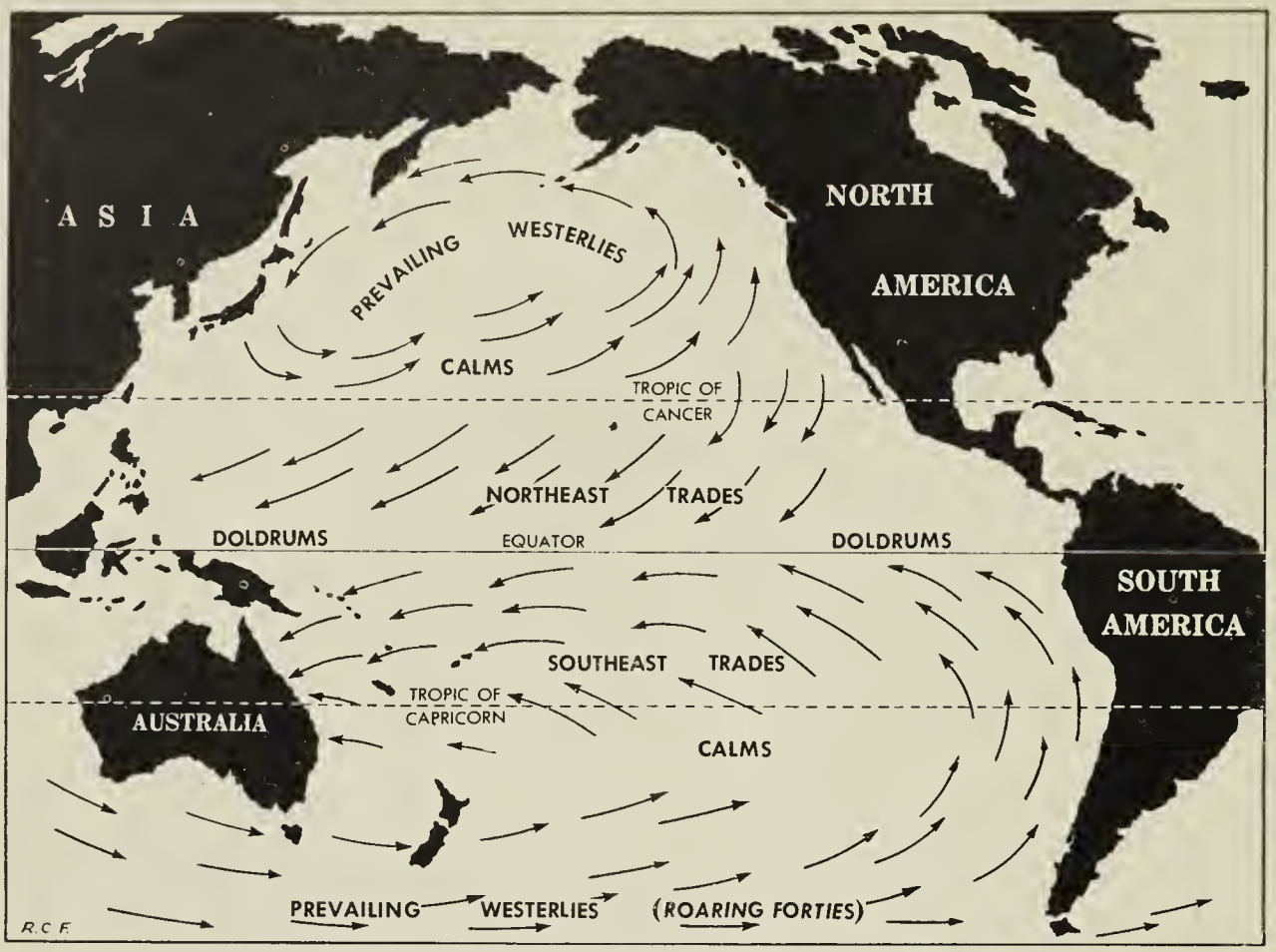
EQUATOR

140°

SOCIETY IS.
(FR.)

TAHITI

PITCAIRN I.
(BR.)



Prevailing winds and calms of the Pacific.

Even modern steamers and aeroplanes make use of the winds to save time and fuel.

Westerlies and trade winds · We can learn about the winds that blow across the Pacific by studying the map above. Locate the westerlies, blowing from the west in both the North and the South Pacific, and the northeast and southeast trade winds. The direction of the winds will explain why Magellan's ships went northwest to the Philippines from the Strait of Magellan, rather than due west to New Zealand. Notice the stormy westerlies in the South Pacific. They blow so strongly that it took Magellan six weeks to sail his ships against them through the short Strait of Magellan.

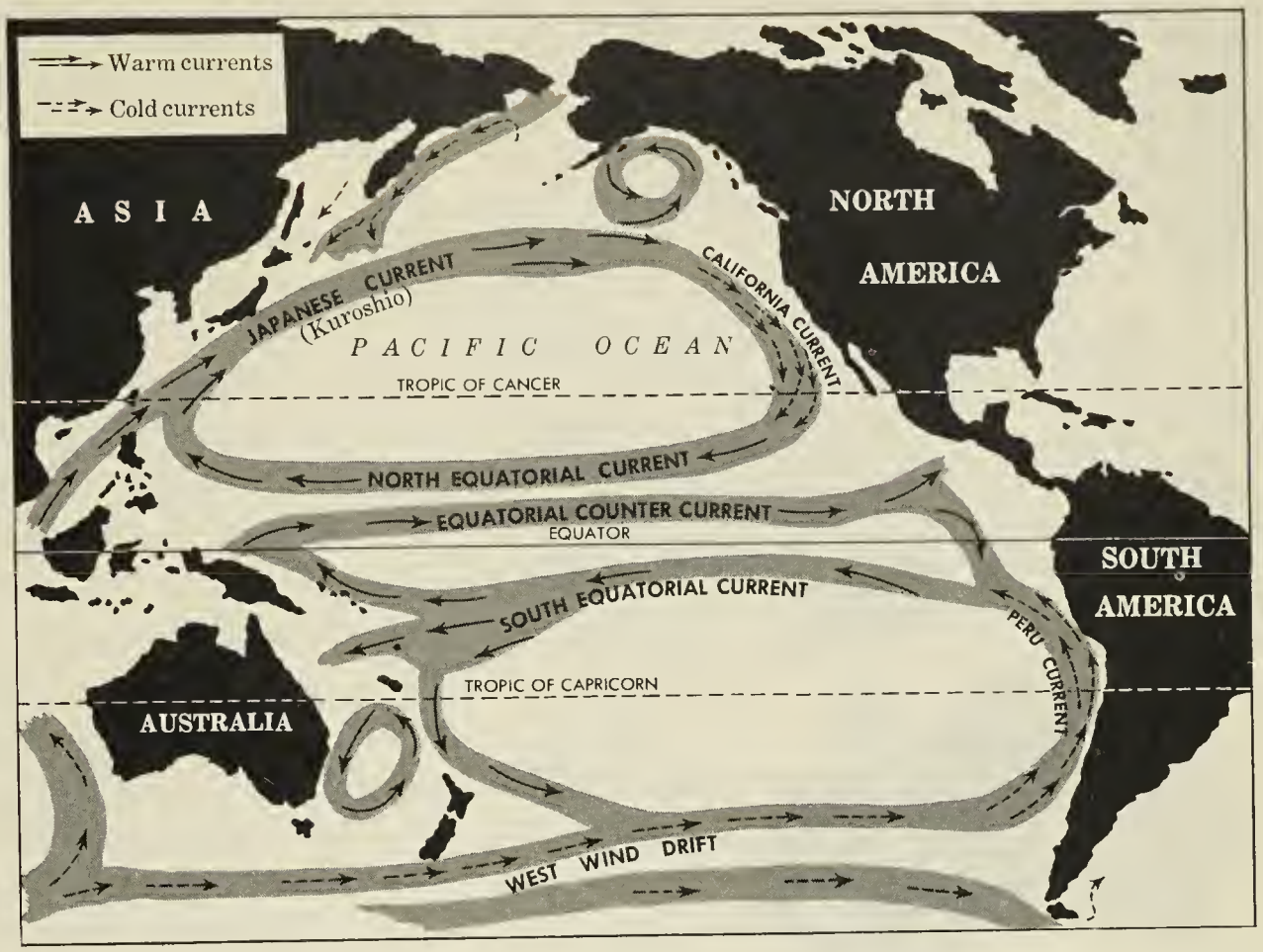
Near the equator there are no strong winds, and so sailors avoided this part of the ocean and its calms, which they called the doldrums. But the northeast and southeast trade winds blow steadily and could be depended on to carry the ships along. They are not so stormy as the westerlies.

SPANISH TRADING ROUTE · On the map above, follow what you think was the Spanish trading route across the Pacific from Peru to the Philippines. Which winds did the traders use to get home from the Philippines to America?

Pacific Ocean currents · Look at the map on page 145, showing ocean currents. As we know from reading about the Gulf Stream, the surface waters of the oceans drift along with the wind, forming these currents. This explains why trunks of trees, wreckage from ships, and even native canoes have been carried very long distances across the sea.

Find the South Equatorial Current on the map. When the Equatorial Current reaches the western side of the Pacific, it divides to turn north and south. The northern part runs past Japan, where it is called the Kuroshio, or Black Stream. This turns east again and reaches the Canadian coast at Vancouver Island, where it too divides to turn north and south. It is often called the Japanese Current.

MAP WORK · Plastic bottles containing notes are sometimes dropped into the ocean from ships and aeroplanes. By studying the way they drift, scientists can learn much about ocean currents.



Ocean currents of the Pacific.

If a sealed bottle carrying a message were thrown into the sea off Japan, can you discover from the map above whether it might reach Vancouver Island? Where might such a bottle go if dropped into the sea off Victoria, B.C.?

ISLANDS OF THE PACIFIC

Stepping-stone islands · The Pacific Ocean is almost empty, for although there are many thousands of islands in it, few of them are large. Aeroplane pilots flying between Asia or Australia and North America must navigate very carefully so as to find stopping places such as Midway Island or Canton Island. These islands are only tiny dots in a vast blue ocean.

Although most Pacific islands are small, some of them are very important because they are calling places for steamers and aeroplanes. The map on pages 142–143 shows some of the most important of them. Locate on it the Hawaiian Islands, often called the "Crossroads of the Pacific." In what latitude are they? Now find Samoa, the Fiji Islands, and the New Hebrides. In what latitude are the Cook Islands? Other well-known island groups are the Solomon Islands, Gilbert Islands, and the Society Islands, among which is Tahiti.

Mountains in deep water · All of these, and thousands of other islands, rise from the bottom of the deepest water in the world. Parts of the Pacific are deep enough to drown such high mountain ranges as the Andes. Many islands are really the tips of high mountains which rise from the sea bottom. Mauna Kea, a peak in the Hawaiian Islands, rises more than 30,000 feet above the bottom of the sea. Such very high peaks are usually volcanic.

Atolls and lagoons · Many other Pacific islands rise only a few feet above the water. They are made of coral, as are the Bahama Islands which we have already visited. Some of these coral islands are ring-shaped and are called *atolls*. They vary in width from a few hundred feet to more than fifty miles. The *lagoon*, or calm water inside the coral ring of the atoll, often provides a safe harbour and a good seaplane base. Canton



The islands of the Pacific.

Island has a landing field built on the coral beach between the lagoon and the open sea.

PACIFIC ISLAND PEOPLES

A mixed population · Who are the people living on these islands? Where did they come from? They are not all of one type, but are among the most mixed peoples in the world. In the Hawaiian Islands, for example, there are now many people from North America and Europe, in addition to the native Hawaiians and large numbers of Chinese, Japanese, and Filipinos, as the natives of the Philippine Islands are called.

Many of the islands of the South Pacific have attracted people in search of peaceful homes. They like the pleasant climate, rich soils, and the quiet life far from large cities. There are also missionaries who have come to teach Christianity to the natives and to assist in educating them and improving their health. Then there are traders, and government officials who have come to train the islanders to govern themselves.

Native islanders · We must not think of the native islanders as being all alike. Some are very short people, while others are tall; some have light-brown skins and wavy hair, while others have very dark-brown skins and frizzly hair. Scientists have placed them in three main groups, and we should remember the names they have been given. In the east and south of the Pacific are the *Polynesians*, in the west the *Melanesians*, and in the northwest, nearest to Asia, the *Micronesians*.

The largest of the three groups are the Melanesians, who have been called "oceanic Negroes." They live on islands as far apart as New Guinea and Fiji.

The Micronesians, who live on many small islands, are close relatives of the peoples of southeast Asia.

The Polynesians are in some ways the most interesting to us. They include the Hawaiians and the natives of Samoa and parts of Fiji. It is believed that they, like all the Pacific islanders, are descended from people who at one time lived in southeast Asia. They travelled from there by moving from island to island in their canoes until they had spread over most of the ocean. Because of these long eastward journeys in times gone by, the Polynesians have been called the "Vikings of the Sunrise."

Among the most famous of their long journeys by sea was the one made about six hundred years ago, from the Society Islands in the middle of the Pacific to New Zealand. Such journeys could be made only in very large canoes or sailing vessels and by people who knew how to steer across long stretches of open ocean. We are amazed to learn that they did this without a compass or knowledge of latitude and longitude. Sometimes they navigated by following certain birds when they were migrating. They must also have known how to steer by the stars.

OCEAN WILDLIFE AND ISLAND WILDLIFE

The fishes, birds, and animals of the Pacific are also very interesting. We shall mention only a few and leave the others for you to look up in reference books. The ocean is, as you know, very large and very deep, and contains water that is not all of the same temperature. As a result, we shall expect that the fishes, animals, and plants in it will be of different kinds.



British Information Services

These Melanesians live in the Fiji Islands.

Pacific fishes · Colder water can hold more oxygen than can warm water, and so it is in the cold water that fishes are most plentiful. In the cold Peruvian Current off the coast of South America, there is an important fishing industry. Bonito, caught in these waters, are sometimes imported into Canada in cans under the name of tuna. Most of the cool-water fishes are much like those found off the Canadian coasts. In tropical waters fish are

A group of Polynesians in Hawaii decked with flowers for a celebration.

United Air Lines



fewer. Many are very brilliantly coloured, like those in the Caribbean Sea.

Island animals and birds · All animals living on the Pacific islands are descended from animals which came from the mainland. For this reason, there are many of them on islands near Asia and very few on the more distant islands. In fact, the only animals which reached unaided the small islands far out in the Pacific were some kinds of bats—which are flying animals that feed on insects. Birds, of course, can reach all the islands, and the Pacific is a wonderland of birds from many lands.

SOME THINGS TO DO · **1.** Look at the pictures of Melanesian and Polynesian women on page 147. Are the women of the two groups much alike?

2. Explain why there are more fish in some parts of the Pacific Ocean than in other parts.

JOURNEY TO AUSTRALIA

Now that we have learned something about the Pacific Ocean and its islands, we are ready to start on our journey by air from Canada to Australia, which will take us about 6,800 miles across the ocean. Our plane will land at Honolulu, Canton Island, and the Fiji Islands on the way to Sydney in Australia, and we shall learn more about these and other islands as we go along.

EN ROUTE TO HAWAII

Promptly on Friday evening the giant aeroplane, named *Southern Cross*, takes off from Vancouver airport. Once Vancouver Island has disappeared out of sight behind us, and even the large ocean-going vessels appear as specks on the sea below, we are free to read a guidebook about the Hawaiian Islands which we shall be seeing before breakfast tomorrow morning. The first thing we learn is that our watches must be put back two hours, because Honolulu is two time zones later than the Pacific coast.

Lonely islands · The Hawaiian Islands form a long line, stretching about 1,500 miles from northwest to southeast. Although they are spread out over such a long distance, their total area is only about 6,500 square miles—roughly three times that of Prince Edward Island.

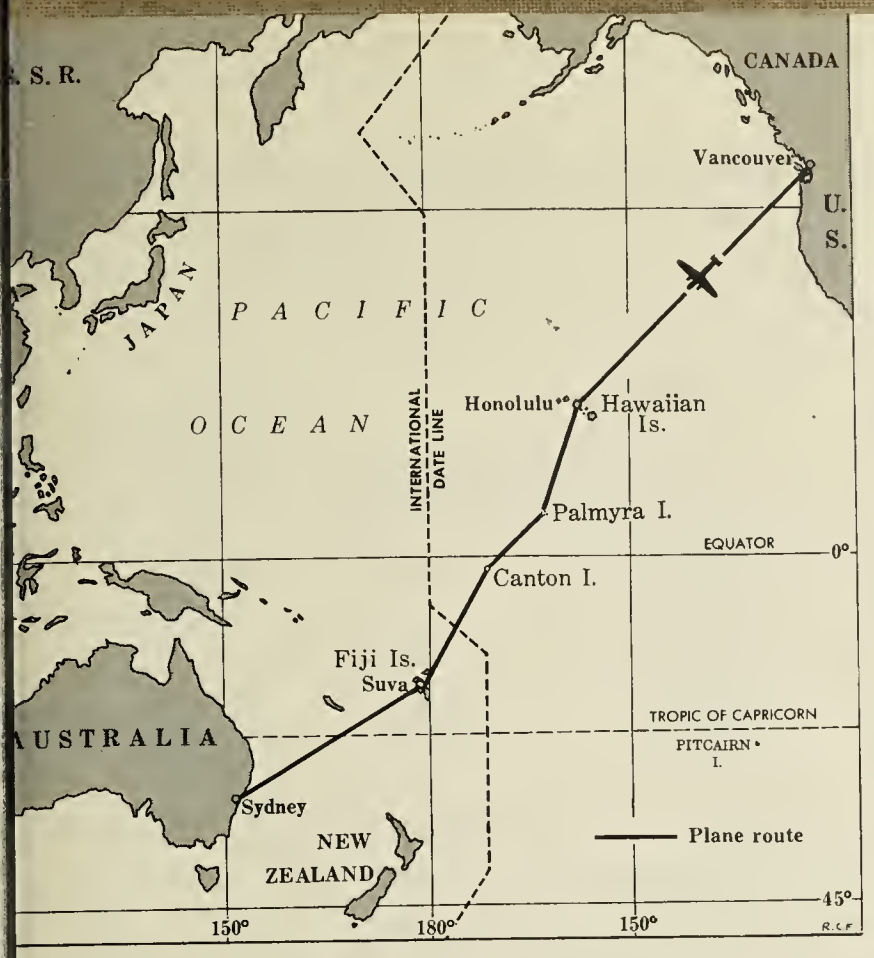
As we shall be flying for more than six hours before we land, we realize that the Hawaiian Islands are a very long way from the nearest part of North America—the nearest of them are about 2,100 miles from San Francisco. Yet they are more than twice as far from Australia, for Sydney is about 4,400 miles from Hawaii.

We read that the islands are famous for many things—"mighty volcanoes, rich vegetation, beautiful beaches, delightful climate, pineapples and other fine fruits, and attractive native peoples."

All the islands are volcanic, but the only active volcanoes are on one island—Hawaii.

Islands wet and dry · Because the Hawaiian Islands are in the belt of trade winds, rain is heaviest on the northeast side, from which the wind is blowing. On the windward side of peaks such as Mauna Kea, there may be as much as three hundred inches of rain in a year. On the other side, away from the wind, there may be only twenty inches. In the case of low islands which have no mountains, the weather may be even drier; as they are flat, the wind does not rise as it blows across them, and so rain does not fall.

All the islands have a warm climate, partly because they lie near the tropic of Cancer, and partly because they are sur-



Our flight to Australia.

rounded by warm ocean waters, from which warm winds blow in winter. Air over the ocean does not change in temperature as quickly as does air over land, and so places near the sea always have a milder climate than they would if they were located farther inland.

THE HAWAIIAN ISLANDS

An American outpost · On Saturday morning we land at the Honolulu airport and see the United States flag flying overhead. This makes us realize that these islands are American territory. They have been such since 1898, but they have not yet been made a state, although this may come about in time.

Honolulu, a modern city · The city of Honolulu contains about half of the 500,000 people on the islands. It has grown up on the shore of a good natural harbour, which is protected by a *coral reef* (a ridge of coral just below the surface of the water). It is now the largest city in the Pacific islands, and is very much like any other American city in appearance, with large business blocks, apartment houses, hotels, factories, parks, and broad streets crowded with American cars. The famous Waikiki Beach attracts crowds of holiday makers to the shore. Inland the city is spreading up the side of the volcanic hills until it now reaches 1,000 feet above sea level.

Wealth from sugar and pineapples · In what ways do Hawaiians make a living? Most of the land is used for two crops, sugar and pineapples.

The sugar cane is grown on very large plantations, using as much machinery and as few workers as possible. In this, Hawaii is very different from some of the sugar-growing areas about which we have learned. Ploughs pulled by huge tractors turn the soil over to a depth of two feet. Other machines follow to dig furrows for the cane, pour in fertilizer, and plant the pieces of cane from which new canes grow. Water is carried to the growing plants by metal troughs, and weed killer is sprayed over the ground. When the crop is ready to harvest, bulldozers knock the tall cane over while cranes haul it into piles for shipping to the mill. In such ways a tremendous crop is grown without the use of many workers.

Pineapples are the second largest crop. Many millions of boxes of canned fruit, pine-

Tourists from all over the world come to Waikiki Beach.

Hawaii Visitors' Bureau





Hawaiian Pineapple Co., Photo

The ripe pineapples are placed on a moving belt which carries them to a bin on the truck.

apple juice, and frozen pineapple are shipped out every year.

Other sources of wealth · Many other crops are grown in the islands—flowers for sale in the United States, vegetables for use in the local towns and at military camps, and coffee. Somewhere on the islands one can find almost every kind of tropical crop. Sheep and cattle are also kept. Even the sea helps to provide the islands with wealth. Most of the fish is eaten locally, but canned tuna fish is sent to the United States and Canada.

There are two rather special ways in which Hawaii becomes richer. The one is from the tourists, such as we are, who spend many millions of dollars in the islands every year—more even than is brought in by the whole pineapple crop. Such people are attracted by the pleasant climate and the beautiful scenery of the islands. Some are on the way to other places and stop for a brief vacation.

The second special source of wealth is the many American naval, air, and army camps and bases, including the famous Pearl Harbour naval base. The wages and other money they bring to the islands are greater than that obtained by the sugar crop.

Where the people come from · The Hawaiian guidebook we have been reading contains a list of the different peoples living on the islands. Here it is:

Hawaiian	21,000
Part Hawaiian	43,000
American and European	116,000
Chinese	29,000
Japanese	160,000
Korean	6,000
Filipino	52,000
Others	1,000

What does this list tell you about Hawaii as a "crossroads" of the Pacific?

CAN YOU EXPLAIN? **1.** Why do the sugar growers of Hawaii use tractors, bulldozers, cranes, and other machinery on the plantations?

2. "High" islands in the Pacific have a wet side and a dry side. Why are "low" islands usually without a wet side?

ON TO CANTON ISLAND

We continue our journey · Our aeroplane, *Southern Cross*, takes off from Honolulu airport on Sunday evening for the long hop across the sea to Canton Island, where we are due to arrive the next morning. About halfway there the navigator will be able to check his position as we fly over the coral atoll of Palmyra Island. Such a check is important to make sure that we are on the right course. Canton Island for which we are heading is only about twelve miles wide, and is not easy to find in this enormous ocean.

Remote islands · As we fly along through the still evening, a young man seated near us chats about some of the small far-off islands.

"Have you heard of Pitcairn Island?" he asks. "It is famous because some English sailors who mutinied on the ship *Bounty* more than 150 years ago settled down there and married into local families. Some of their

descendants still live there. On the map on page 146 you can find the island near the tropic of Capricorn almost due south of Vancouver. The islanders now grow most of the food they need and export oranges and pineapples."

Our companion then tells us about Easter Island, still farther to the east. This was the farthest place reached by the ocean-going Polynesians moving eastward from Asia. There are some huge stone monuments there that no one can explain.

Our friend then adds: "I once worked on the Cook Islands for the New Zealand government, which has charge of them." We ask whether Captain Cook discovered them.

"Yes, he did," our friend replies. "Cook was a very remarkable man. Among other things, he was always trying to get fresh food for his crew. That is what took him to these islands. The Cook Islands have a wonderful tropical climate. The people have no trouble growing enough bananas, oranges, and tomatoes for export. They also ship out dried coconut, which is called *copra*. Unfortunately there are no large harbours. As at many small Pacific islands, ships have to anchor offshore and unload into *surfboats*, small boats which are then rowed to the beach. Of course, all the islanders are wonderful sailors, but the trip through the breakers is an exciting one for a stranger."

We ask our friend where he is going. "I'm off to Fiji to assist with some mapping of the islands from the air. I've just been to Canada to learn what I can about aerial photography there. The Canadians have done a fine job of mapping the far north by using planes."

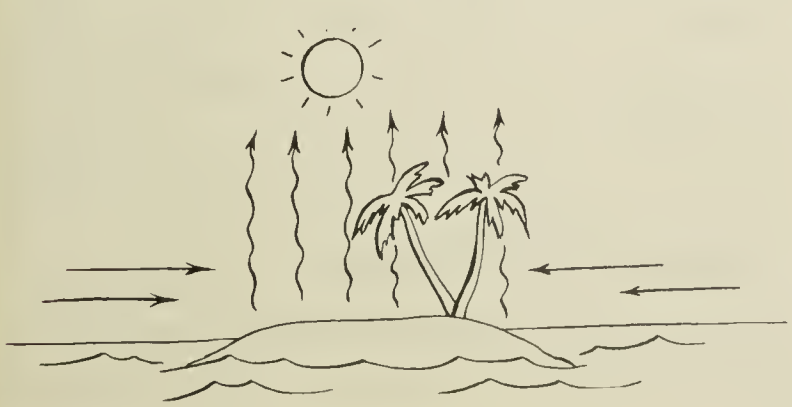
CANTON ISLAND

Early the next morning we land at Canton Island. Shortly before reaching the island, our plane crossed the equator, but there was nothing to see, and we find there is not much more at Canton Island. It is a small coral atoll, very important to planes. They land there to take on more gasoline and oil and to have their engines checked before the long flight to the Fiji Islands. The airfield is built on the coral limestone between the open ocean and the calm lagoon. There is a good hotel for visitors like ourselves, and two post offices. The British and the United States governments share control of the little island and each sells its own stamps. While we are waiting to leave, we see a tanker enter the lagoon through a gap in the coral reef. It will unload its oil into tanks near the airport.

Land and sea breezes · Because we are very near the equator, the sun is hot, but a cool breeze blows in from the open ocean.

When we ask the New Zealander why there is a cool breeze on a hot day, he makes two little sketches (below) on the back of the airline timetable.

Can you now understand why there is sometimes a sea breeze on such an island, and at other times a land breeze blowing out to sea?







Harrison W. Smith

Surf boats taking fruit to a freighter in the Cook Islands.

ACROSS THE INTERNATIONAL DATE LINE

Losing a whole day · Once more we are in the air, this time bound for the Fiji Islands. Our New Zealand friend says that he has a puzzle for us. Taking the airline timetable out of his pocket, he asks, "Have you noticed anything strange about this timetable?

Monday	6:15 A.M. **Canton Island**	Saturday	2:45 A.M.
* ↓		x ↑	
Tuesday	11:30 A.M. **Fiji (Nandi)**	Saturday	7:30 P.M.

Do you see the two marks * and x? Under one it reads, 'One day lost,' and under the other it reads 'One day gained.' Today we shall cross the *International Date Line* which is shown on the timetable map. When we cross the line, the date is changed by one day. This is the reason.

"You know that as we travel across Canada from Halifax to Vancouver, our watches have to be changed four times. When it is 4 P.M. in Halifax, it is noon in Vancouver. After we left Vancouver in the plane, we continued to put our watches back when the stewardess told us to. By now we have put them back three more hours and we shall put them back another hour this morning.

"Now if we were to continue around the world and so back to Halifax, we'd have put our watches back twenty-four hours, or one whole day, by the time we finished our trip. That would mean that we would have lost a day. We would think it was a certain day, but the people in Halifax would tell us it was a day later. Such problems are settled along the International Date Line; everyone in the world agrees to do it here. Going west we jump a day ahead; going east we have the same day twice. I once missed Christmas Day crossing the line, when we changed from the 24th to the 26th of December. Some people probably had two Christmas days going the other way."

THE FIJI ISLANDS

Nandi airport · The Fiji Islands come into view, and we soon land at Nandi airport, on the western side of Vita Levu, the main Fiji island. There are other aeroplanes nearby, since Vita Levu, like Honolulu, has become a meeting place for air routes from many different directions. On one side of the airport is palm-bordered Nandi Bay, while on the other, volcanic mountains rise higher and higher toward the centre of the island. All around are pineapple and sugar plantations.

Mapping from the air · After lunch our New Zealand friend invites us to go up in his photographic plane for an air view of the islands. First he shows us how air photographs will be used to make correct maps. An aeroplane is flown back and forth across a section of land, while a camera takes photographs of the ground beneath. These pictures are then fitted together and a map is drawn from them.

An air view of the Fiji Islands · Once more we are in the air, this time in the photo plane, looking down on the islands. There are two

main islands—the bigger, Vita Levu, is about sixty miles long. We are told that there are about 260 smaller islands, although only half of them have people living on them. The large islands are old volcanoes, and under the volcanic rocks there are even older rocks which in some places contain gold.

Around all the islands there are coral reefs. They are easy to locate because the Pacific waves break on them, making a white line like a ring around the coast. Inside these white rings the islands themselves appear bright green patches in a deep blue sea. Our guide says that the long line of islands reminds him of a string of emeralds on a necklace.

Soon the plane turns and flies low over the deep green forests, across plantations, over villages where we can see people putting new palm-leaf roofs on their huts, across a river with bamboo boats loaded down with bananas, then over open fields where there are black and white cows grazing, and so once more over the outskirts of Suva, capital city of the Fiji Islands, and down to Nandi airport by the sea.

Suva · Suva harbour is one of the largest and safest in the Pacific. Ocean-going freighters and passenger ships from Australia, New Zealand, Canada, Europe, and the United States are tied up at the wharves. There are buses, cars, and trucks parked nearby.

A mixed population · The population of the Fiji Islands is very mixed. Here is a list of the people, divided according to the countries from which they or their ancestors came:

Europeans	5,400
Part Europeans	6,300
Fijians	121,000
Polynesians, Melanesians, Micronesians	3,800
Indians (from India)	126,000
Chinese	2,900
Others	4,000



British Information Services

A coastal vessel carries copra from the outer islands to Suva for export.

Perhaps the most interesting fact about the list is that there are more Indians than Fijians in the islands. The Indians originally came to work on the plantations. Now many of them are labourers, servants, clerks, taxi drivers, or craftsmen, and some run small businesses of all kinds.

Schools and colleges · Visitors to Fiji are always interested to learn that the medical college at Suva has for many years trained native doctors to serve not only locally but also among many of the distant Pacific islands. There are usually about fifty students in training, as well as many nurses.

A fine herd of dairy cattle in a rich Fiji pasture.

British Information Services





British Information Services

Examining copra for colour, cleanliness, smell, and dryness.

Other schools in the colony are also being much improved. There are technical schools where Indian students like to go for training as mechanics and craftsmen. There are also high schools training students to enter college. Grade schools are open to everyone.

Exports of the islands · Sugar is the most important crop in the islands. The second most valuable export is gold. The copra industry gives a living to many Pacific islanders, including Fijians. To make copra, coconut meat is dried in the sun. It is then packed into bags for export to factories where it is crushed to extract the oil, which is used in margarine and soaps.

Swimming is fun in Samoa. Notice the huts in the village, with thatched roofs and open sides. What do they tell you about the climate?

By Ewing Galloway, N.Y.



SHIPPING ROUTES · We have been seeing the Pacific islands from the air. Many people travel by sea. The Hawaiian Islands, like the Fiji Islands, are "crossroads" of shipping routes as well as of the airways. One shipping route runs direct from the Panama Canal to northern New Zealand. Does it go near any of the islands we have read about?

NEW CALEDONIA · On the map on page 146 find the island of New Caledonia. Which tropic is it near? The name of this island means the same as does Nova Scotia. What is that in English? Canadians are interested in the island because it is a source of the metal nickel. As you know, most of the world's nickel comes from mines in Ontario. New Caledonia is one of the French colonies in the Pacific.

TROPICAL HURRICANES · New Caledonia, like some other Pacific islands, may have very strong winds that do much damage. Such winds are called *hurricanes* in some parts of the world, or *typhoons*, or *tropical cyclones*. Here is part of a letter from a man living in New Caledonia.

"It was at about nine o'clock, four hours after it had started, that the storm reached its highest fury. I feared that the house would collapse.

"The next day we looked at the damage. The kitchen was gone, so were the hen house and the barn, and no thatch remained on the roof. Two hundred and fifty coffee bushes were gone. There was no crop left to pick for this year."

What parts of North America may get such storms? Are there such winds where you live?

BUILDING CORAL ISLANDS · You have learned a lot about coral islands. Try to put all the information together, to give the class a talk on "Coral Islands and How They Grow."

SOMETHING TO DO · Among the vegetables grown in Fiji gardens are yams, taro, tapioca, and sweet potatoes. Look up each of these in a reference book to learn more about them. Are any of these foods eaten in Canada?

X · Australia



Australian Official Photo by W. Brindle

Sailing in Sydney harbour. Australians are fond of all kinds of sports.

A FIRST LOOK AT AUSTRALIA

ON TO AUSTRALIA

Woolloomoolo, Kirribilli, Yarrandabby, Taronga, Kurraba—what queer, exciting names these are! Our plane has left Suva, and we are now on the last hop across the Pacific, heading towards Sydney, Australia. We have been eagerly studying our guidebooks, and these are some of the names we have read. How interesting Australia must be!

Presently we see the coast of Australia in the distance. Then we cross the two high cliffs at the entrance to Sydney harbour. We see the graceful arch of the harbour bridge, the busy wharves, the warehouses, and the tall grain elevators. Our plane circles the city, flying lower and lower. We approach the airport; our plane lands. We have arrived in Australia!

A friend, Mr. Davis, is waiting to meet us, to take us to his home where we are to stay. He has volunteered to be our guide.

Soon after we reach his home, Mr. Davis gets us together to tell us about Australia.

DISCOVERY AND SETTLEMENT

"I first learned Canadian geography by studying the history of your country," he says. "By the time I had followed voyageurs from Quebec to the Peace River and down the Fraser Canyon, I had picked up a lot of information. That is true here; the best books about Australia tell of our explorers."



Australian News & Information Bureau

Australian natives ready with their spears for a kangaroo hunt.

Cook visits Australia · Mr. Davis shows us a population map (page 159). "On this map you will see that most of the people live around the edges of this huge island. To find the reason, we should go back to Cook. He was the Jacques Cartier of Australia.

"You have probably heard about Cook's Pacific journeys. He spent six months studying New Zealand, and then set sail for England. After three weeks at sea, Cook and his crew saw the southeast coast of Australia, some miles south of where we are now. Earlier Dutch explorers had seen other parts of the continent and had called it New Holland.

The koala—a live teddy bear. He lives on eucalyptus leaves.

Australian Trade Commissioner, Toronto



The Dutch had not liked what they saw. One of them called it 'a barren, accursed land.'

"What Cook and his men found seemed to be pleasant enough. It was hilly, well covered with trees and tall grasses. For a while they saw no people, but when they reached Botany Bay, which is a little south of Sydney, a few dozen black, naked savages attacked them with long wooden spears. These *aborigines* (a word meaning 'natives') lived a very primitive, or backward, life, depending on the natural products of the land and on animals for their food and clothing. When hunting, they set fire to the tall grass and so drove all the animals to a place where other hunters waited to kill them. One of the weapons they used was a curved piece of wood called a *boomerang*.

"Wherever Cook and his party landed in Australia, they found new sights at which to marvel. They saw none of the animals they had known at home. Instead they saw kangaroos and wallabies in the scrub or bushes, and lyre birds which could imitate the noise made by other birds and animals. They also saw koalas, ant eaters, emus, and kookaburras, which we now call 'laughing jackasses.' You have probably seen some of these creatures in zoos, but Cook's men could hardly believe their eyes. You can imagine some of the stories they told when they got home to England!"

A new homeland · Mr. Davis goes on to tell us about the settlers. "As the news of the discovery of this new land became known, settlers from the old country started coming to Australia. Some convicts, too, were sent from England to live in Australia as a punishment. The first settlement began right here, on a long, narrow estuary. Later it was given the name of Sydney. Adventurers sailed north and south along the coast, searching for good places for farms. The colony of New South Wales, started in 1786,

soon had a row of towns and villages along the coastline. When the farmers tried to push inland to the west, they found the way barred by mountains and high plateaus. As newcomers arrived, however, more pasture land for their sheep had to be found, and at last routes inland were discovered.

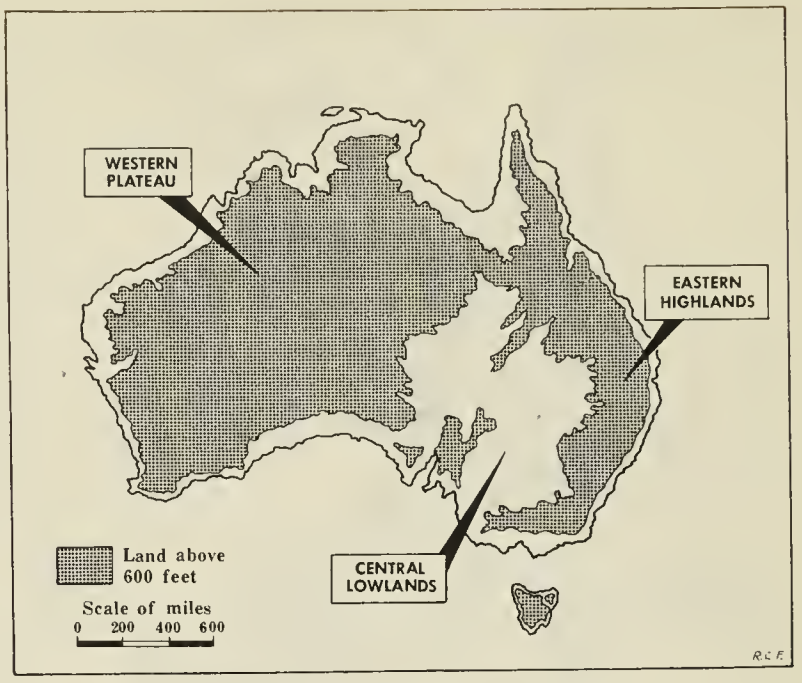
"Other settlers made their homes along more distant coasts of the new continent. Some chose the pleasant, fertile island of Tasmania. Another group founded the city of Adelaide, now the capital of South Australia. Far away on the west coast, a colony was started which was to become Perth.

"More and more settlers from the British Isles arrived to settle towns, villages, and cities on this distant continent. Most of them made their homes along the east and southeast coasts, and the map shows you that most of our people still live there."

SOME READING TO DO · **1.** The story of the exploration of Australia is a very thrilling one in which men from several countries took part. Find out what you can about a few of the following and write a paragraph about them: Francis Pelsart; William Dampier (a pirate); La Pérouse (he also explored Hudson Bay); Matthew Flinders and George Bass (they explored the coast of New South Wales); John Oxley (he found a way inland from Sydney); Sir Charles Sturt (he first travelled down the Murray River); Robert O'Hara Burke and William John Wills (the first men to cross Australia from south to north).

2. Why did the Dutch explorers report that Australia was a desert land, although Cook found fine forests, streams, and meadows?

3. Try to discover from your reading when the six Australian colonies, New South Wales, Victoria, Queensland, South Australia, Western Australia, and Tasmania, agreed to join together to form the Commonwealth of Australia, which is a federation of separate states forming a single country. A state in Australia is similar to a province in Canada, and has its own parliament for local affairs.



A landform map of Australia.

THE LAND

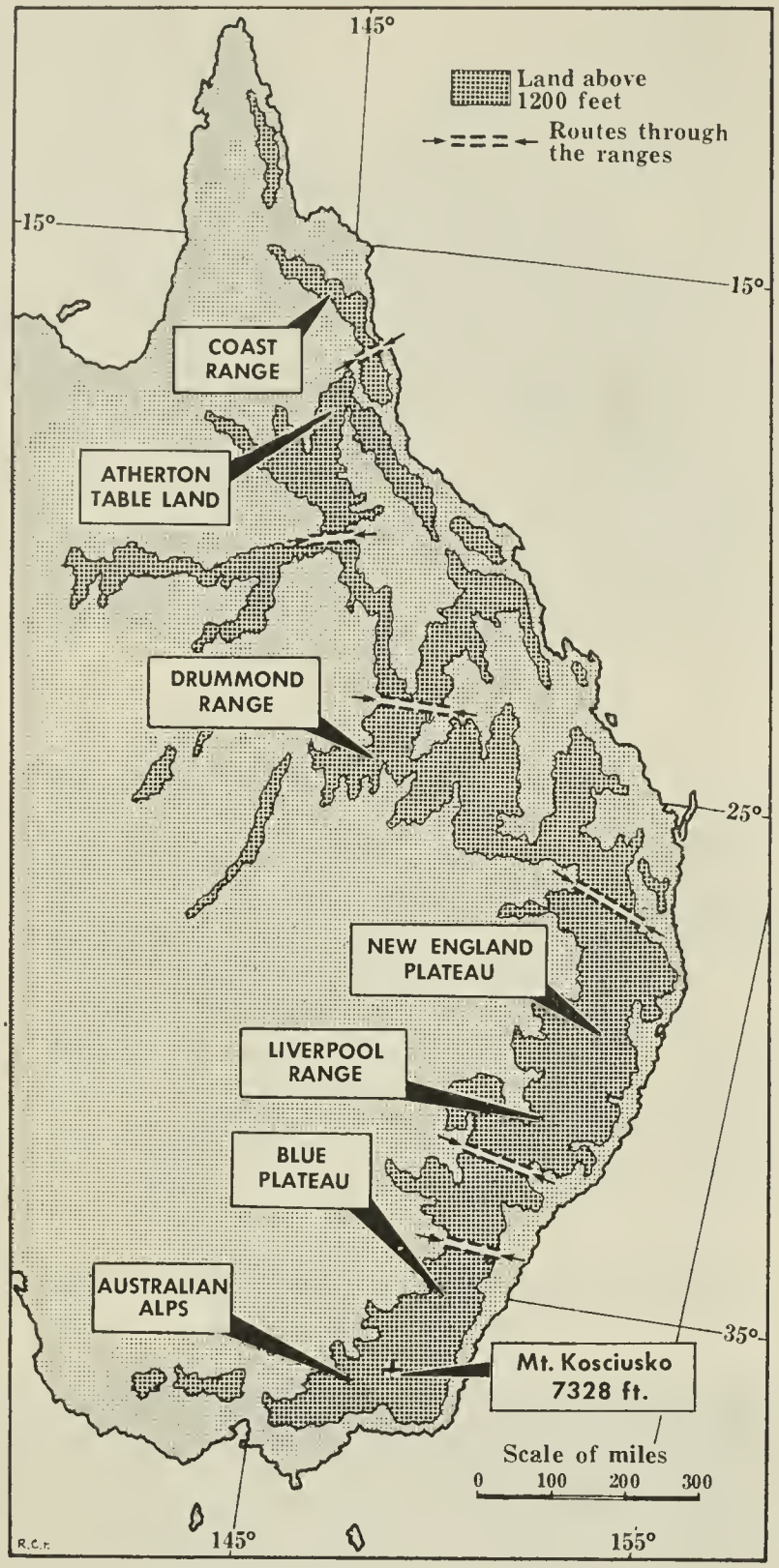
The next evening, after a day of sightseeing in Sydney, we gather round Mr. Davis again, to learn more about Australia.

"To understand how we Australians live," Mr. Davis tells us, "you should see as much of our country as you can. Before we leave Sydney, however, we should study some maps, to understand what we shall see."

A mother kangaroo carries her baby about with her in a pouch.

Australian News & Information Bureau





The eastern mountain ranges.

A vast land · Mr. Davis shows us a relief map. "First of all," he says, "we must get some idea of the real size of this country. Our land is about two-thirds as large as Canada. It is roughly three million square miles in area, one of the biggest countries in the world. If you travel from Sydney to Perth in Western Australia, the distance is about the same as that from Montreal to Vancouver. From Darwin in the north to Melbourne in the south is as far as from Winnipeg to Florida."

Highlands and lowlands · Mr. Davis points to the map (page 157) as he talks. "We know that settlers here on the coast of New South Wales could not go inland; the way was blocked by highlands, which stretch northwards from near Melbourne to Cape York Peninsula. Can you find the names of some of these ranges on this map (opposite)?

"The central and western part of the continent is a desert plateau about 1,200 feet above sea level. A few mountain ranges rise still higher, including the Macdonnell and Musgrave ranges. Salty lakes and marshes are scattered on the plateau. The Great Plains, or Central Lowlands, lie between the plateau and the mountains here on the east. Some of this region, near Lake Eyre, is below sea level. There are also small areas of lowlands along the coast of the continent. They are the coastal plains.

"And now," Mr. Davis concludes, "before I go on to tell you more about my country, here are some questions for you to answer."

TRY TO FIND ANSWERS TO THESE QUESTIONS ·

1. In what parts of South America are there ranges of mountains which make it difficult for people to move inland from the sea?

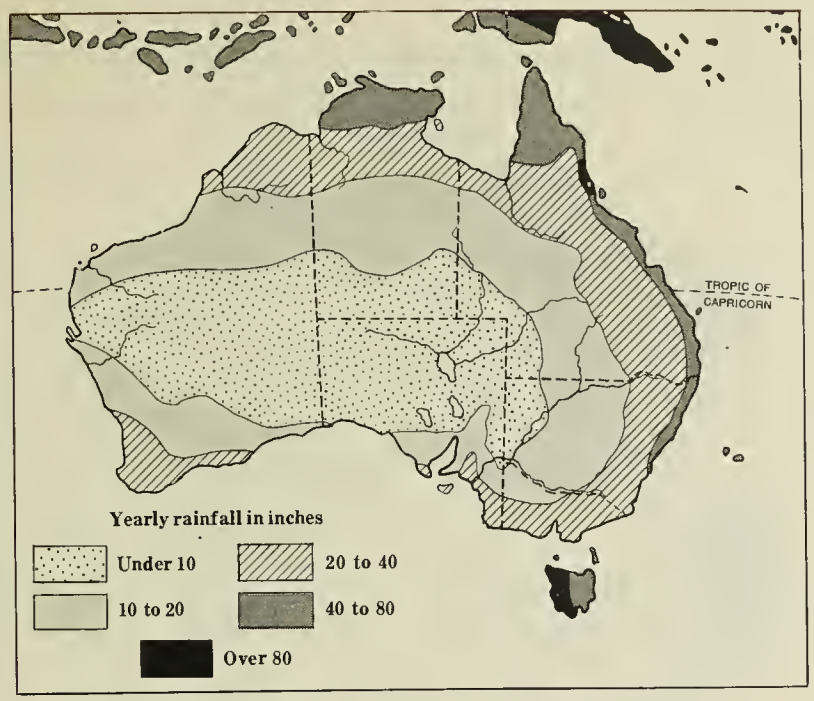
2. Could the first settlers on the west coast of Canada go inland to the prairies easily?

3. What part of South America is a plateau?

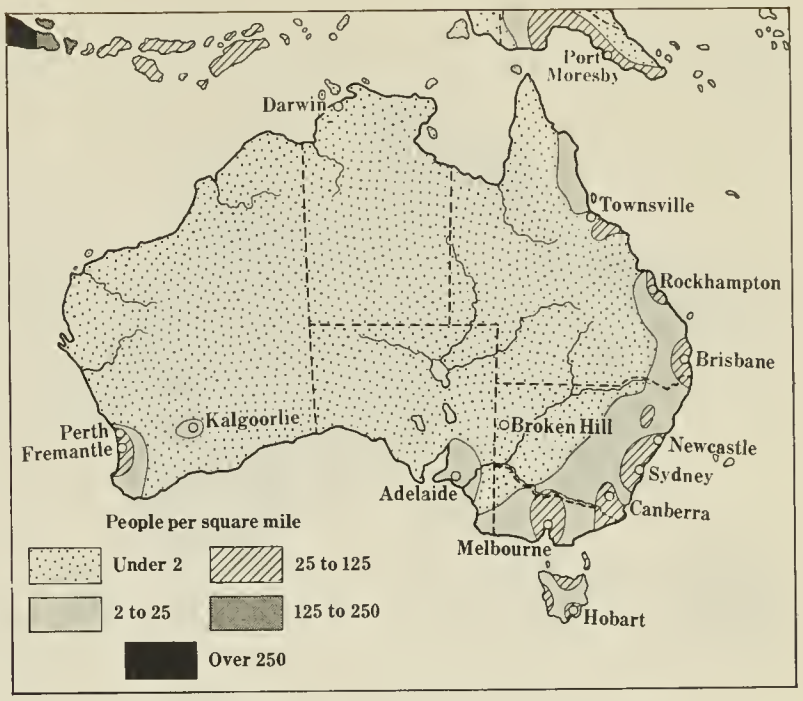
4. Is there a coastal plain in western Canada?

THE CLIMATE OF AUSTRALIA

Landforms and rain · "It makes a lot of difference to the climate of Australia whether the land is high or low, level or rugged," Mr. Davis tells us when next we are gathered together. "Look at the rainfall map of Australia (page 159) and compare it with the relief map (page 157).



Average yearly rainfall in Australia.



Population in Australia.

"Because the wet southeast trade winds blow quite steadily towards the continent, the slopes of the eastern mountains that face the sea have enough rain. But in the lowlands on the other side of the mountains it is different. There, as in your province of Alberta, land is much drier than near the seacoast. In many parts of Australia there is too little rain for farming or ranching.

"Tasmania has rain throughout the year. In this way it is rather like Vancouver Island. Some parts of southern Australia, especially near Adelaide and Perth, have rain mainly in winter, and the summers are dry and hot. They have a climate like parts of California and central Chile.

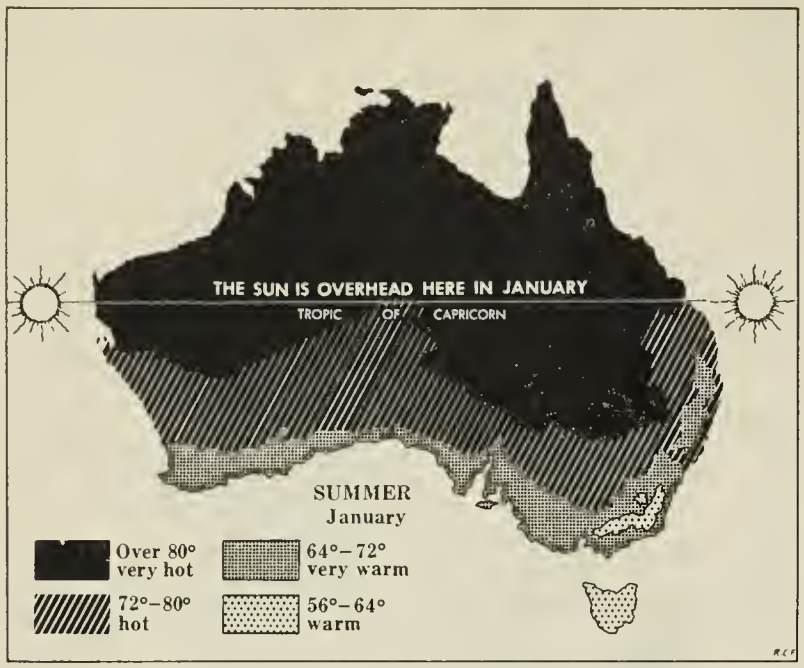
"In the north most of the rain falls in the summer months when the weather is very hot. It is called monsoon rain. The word *monsoon* means 'season,' and monsoon winds are so called because they change with the season. When the central part of Australia is very hot, strong winds blow inland from the ocean on the north. These winds bring rain to the coast. The central part of Australia is cooler in winter because the sun at noon is overhead far to the north, over Asia. Then the winds blow from Australia out to sea and the land is very dry. This change in wind and therefore in rainfall is the monsoon."

Temperature · Our friend then talks about Canada for a while. He recalls the very cold winter days on the prairies, and also some of the very hot days in summer.

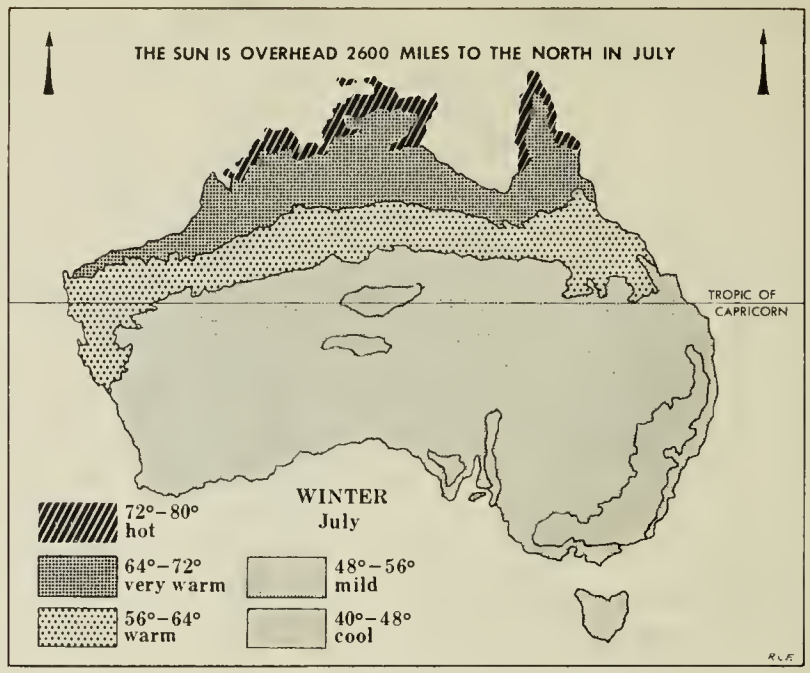
"On an average, Australia is much warmer than Canada," he continues. "It is nearer to the equator, and more than a third of it is within the tropics, so that the noon sun is directly overhead there for a part of the year. It is in about the same latitude as the area of South America between Lima and Valparaiso.

"We expect the northern part of Australia to be hot. Darwin, on the coast, has an average temperature of 80° for nearly every month in the year. Parts of the northwest are very hot indeed in summer. I know only three places in the world as hot as Wyndham, near Darwin. Central Australia, too, is hot.

"Southern Australia is cool in winter. Hobart, the capital of Tasmania, occasionally has frost. Its average temperature in July, which is, of course, mid-winter here, is 45°. In the Australian Alps, in Victoria, it is cold enough for deep snow and we go there in winter to ski.



Average temperatures in January.



Average temperatures in July.

"On the whole, we do not have to worry about cold weather in Australia. Our troubles are heat, drought, and sometimes floods. Drought is our main problem."

SOMETHING TO DISCUSS · Plans are being made to turn the flood waters of some Australian rivers that flow down to the Pacific Ocean, across the ranges to the drier western side. What difference would this make to the people living on the dry side?

THE PEOPLE OF AUSTRALIA

Where the people live · "As I have told you," Mr. Davis goes on, "most of the people of Australia live round the edges of the continent. The reason for this is the climate.

"We must not forget that people coming here to settle go to places where they can find work. If a place is too dry or too wet, too hot or too cold, the newcomers will not stay. They will move to a better region.

"Let us take a look at this population map (page 159). You can see at once that people are not scattered evenly everywhere. Most of them live near the southeast coast in the states of Victoria and New South Wales. There are also some well-populated areas farther north along the coast of Queensland, and there are many people in the southwest. Most of the island of Tasmania is well populated. Then there are large parts of the country with no one at all.

"You may be wondering why people do not move into the empty spaces. Let us look at the rainfall map again (page 159).

"Do you find that the rainfall map looks much like the population map? This eastern part of the country, where there are so many people, has enough rain. On the other side of the mountains, in the centre of the country, and in the far west, we find little rain and few people. In the north there is heavy rain near the seacoast, yet there are very few people there. If you recall what I have told you about the heat near Darwin and the monsoon rains, you will understand why life in that part of Australia may be difficult, and why there are so few people there."

Who the people are · Mr. Davis goes on to tell us about the people. "The settlers who reached Canada came from many different lands. In South America, too, you saw people not only from Europe, but also from Africa and Asia. Here, in Australia, almost all the population is descended from settlers from the British Isles. Some have come from

the continent of Europe, but almost none from Africa or Asia. Natives of the country number only about 80,000."

STRANGE TREES AND BUSHES

We have been reading about Australian trees and bushes, and some of the names sound strange to our Canadian ears. There are coolibah and mulga, brigalow and mallee, jarrah and karri, bloodwood, iron bark, and many others. We ask Mr. Davis about them.

"Most of the trees in Australia belong to two large families, called *acacias* or *eucalypts*," he tells us. "All are hard woods and evergreens. Some of the eucalypts lose their bark in long strips each spring.

"Australian trees are often very large and provide fine lumber for building. Among the valuable woods are jarrah, used for wooden blocks for city streets, and iron wood, which is used in Canada to protect the hulls of wooden ships which must navigate in ice."

Conserving the trees · Mr. Davis goes on to say, "You Canadians have about a third of your country covered by forests, and you are now beginning to take care of them. We have only one-hundredth of our land forested, and yet we have chopped, sawed, and burned down many of our best trees. Dead trees have caused bush fires which have destroyed millions of dollars' worth of good timber. When the trees are gone, the soil is soon washed away, and the land is ruined. We suffer from wasted forests and ruined soil. Only now are we beginning to do something to conserve what is left."

SOMETHING TO DISCUSS · Australian laws do not allow coloured people to settle in the country. All of Australia's northern neighbours are coloured. There are large areas of northern Australia with very few people in them. Asiatic countries not far away are crowded. Can you suggest reasons for the Australian policy, and other reasons why it should be changed?

SOME QUESTIONS TO ANSWER · **1.** Why did the first settlers in Australia build their homes along the seacoast? Why did the early settlers in Canada not remain on the coast?

2. Are there any reasons why Australians should want to explore the dry interior of their country? How many reasons can you suggest?

3. Why has a large country like Australia so small a population?

FLIGHT AROUND AUSTRALIA

FROM SYDNEY TO CAIRNS

Sydney · We have spent a week in Sydney, and have gone sight-seeing every day, to learn as much as we can about the city. The famous Sydney Harbour, which is also known as Port Jackson, runs inland for about twenty miles. Its shore has many inlets and headlands, and is two hundred miles in length. The two high cliffs at the harbour entrance, which we saw from the plane, are called the "Heads." They protect ships in the harbour from the rough weather of the open sea.

Ferryboats cross the harbour so that people who live in the suburbs can travel to work in the city. We rode on one large enough to carry 1,500 people at a time! The world-famous Sydney Harbour bridge can be used instead of a ferry. It carries trains, streetcars, and a four-lane highway. When lighted at night it looks like a white rainbow.

There are fourteen miles of docks, wharves, and warehouses to take care of shipping. Tall grain elevators hold wheat waiting to go abroad. There are many big office buildings, and factories turning out a wide variety of goods. Sydney is the business and industrial centre for all eastern Australia.

Timor Sea

Darwin

Rum Jungle

ARNHEM RESERVE

Gulf of Carpentaria

Torres Strait

Cape York

Port Moresby

NEW GUINEA

Cape York Pen.

Great Barrier Reef

Coral Sea

Pacific Ocean

Indian Ocean

15°

25°

35°

YAMPI I.

King Sd.

Wyndham

Birdum

DAMPIER LAND

Derby

THE KIMBERLEYS

Broome

Eighty Mile Beach

Port Hedland

Marble Bar

MONTE BELLO IS.

BARKLY TABLELAND

Normanton

Cooktown

Cairns

ATHERTON TABLELAND

Townsville

Mackay

Rockhampton

Bundaberg

Brisbane

Moreton Bay

NORTHERN TERRITORY

L. Disappointment

MACDONNELL RANGE

Alice Springs

TROPIC OF CAPRICORN

QUEENSLAND

Mt. Isa

Cloncurry

WESTERN AUSTRALIA

MUSGRAVE RANGE

SOUTH AUSTRALIA

Lake Eyre

DARLING DOWNS

NEW SOUTH WALES

Carnarvon

Geraldton

Coolgardie

Kalgoorlie

Boulder City

NULLARBOR PLAINS

Lake Torrens

Lake Gairdner

FLINDERS RA

Broken Hill

SHEEP STATION

Darling R.

Perth

Freemantle

DARLING RANGE

SWANLAND

Great Australian Bight

Port Augusta

Iron Knob

Whyalla

Port Lincoln

Spencer Gulf

Port Pirie

Adelaide

Albany

Mildura

Murrumbidgee R.

RIVERINA

Murray R.

LIVERPOOL RA.

NEW ENGLAND PLATEAU

BLUE PLATEAU

Dubbo

Newcastle

Hawkesbury R.

Sydney

Port Kembla

Jervis Bay

Canberra (FED. TERR.)

AUST. ALPS

Mt. Kosciusko

Bendigo

Ballarat

Melbourne

Geelong

VICTORIA

Bass Strait

FLINDERS I.

Great Lake

Launceston

TASMANIA

FLIGHT AROUND AUSTRALIA

Route of trip

Transcontinental highway

Railways

Elevations

0 to 600 ft.

600 to 1600 ft.

North from Sydney · The morning comes when we are to start out on our flight around Australia. We drive out to the airport and board the plane. Just to make certain that we know where we are going, while we are waiting for our plane to take off we trace on a map (page 162) the route we are to follow.

Our plane takes off. As we fly northward from Sydney, we see freighters and passenger liners in the harbour. Several ships are tied up beside the grain elevators while the cargo is pumped through long pipes into the holds.

"Where does all the wheat come from?" we ask Mr. Davis.

"As you know," Mr. Davis tells us, "Sydney is on a coastal plain. To the westward there is the Blue Plateau, and west of that again there are plains. The wheat which comes to Sydney is from the far side of the Blue Plateau, where the climate is drier. If we were to visit one of the large farms there, you would find much to remind you of a Canadian wheat farm. Machinery is used for preparing the soil, for seeding, and for harvesting. The first combines were invented in Australia. About two-thirds of our Australian wheat is exported."

A QUESTION TO ANSWER · You know that grain grown in Canada sometimes suffers from frost. Do you think wheat grown in Australia is in danger of freezing? Give reasons.

A fruit-farming valley · Soon we are over large fruit farms in the valley of the Hawkesbury River, one of the most beautiful rivers on the continent. The winters are mild, and there is plenty of rainfall, so that plants grow during every month in the year. The farms produce oranges, peaches, apricots, plums, tomatoes, and grapefruit.

An important manufacturing district · Our first stop is at Newcastle, a rather smoky industrial city. There are large coal mines nearby. Some of them extend out under the sea floor as they do in Nova Scotia. Coal is shipped from here to New Zealand and the Pacific islands, and even as far as South America, but most of it is used by the local railways and by the iron and steel plants in and near Newcastle. Iron ore needed for these plants comes by ship from Whyalla, on Spencer Gulf in South Australia. There are many kinds of factories in the Sydney-Newcastle area which use products of the iron and steel industry. It is the most important manufacturing district of Australia. As there is work for many people, the population in this region is increasing more rapidly than in any other part of the country.



Photo from Three Lions

Modern machinery loads wheat onto a truck on an Australian farm. Do we bag our wheat in Canada?

Steel works in Newcastle, in the heart of Australia's chief industrial region.

Australian National Travel Association



SOMETHING TO DO · **1.** List four reasons why Sydney has become the largest city in Australia.

2. A few miles south of Sydney there is an inlet called Botany Bay. Find out who gave it this name, and what was the reason for doing so. Botany wool is named for this place.

AN EXPLANATION · There are dairy farms and fruit orchards on the seaward side of the Blue Plateau west of Sydney; there are wheat farms and sheep stations on the other side of the Plateau. Why is this so?

Along the coast · At Newcastle we are only halfway along the coast of New South Wales, and we are still 400 miles south of Brisbane, the capital city of Queensland. As we fly north, with the Pacific Ocean on our right, we see below us sandy bathing beaches, small towns and seaports, and vegetation of a rich green colour. This is the best dairy region on the east coast. The climate is good for growing fodder crops, such as hay, oats, and corn. The milk is made into cheese and butter, most of which is shipped overseas, Mr. Davis tells us. Inland from the coast are the uplands of the Liverpool Range and the New England Plateau. These make it difficult to reach the interior of the country, but railway lines have been built across them.

A huge state · When we cross the border from New South Wales into Queensland, Mr. Davis tells us a little about this state.

"Queensland is a huge state," he says. "It is about 670,000 square miles in area, yet it has only about as many people as the city of Sydney. It produces more sugar than Australians can use, leads the country in beef production, and is third in sheep."

Brisbane · Soon after we cross the border into Queensland, we come in sight of Brisbane. The city is built on both banks of the curving Brisbane River, about fourteen miles upstream from its mouth at Moreton Bay. Brisbane is almost surrounded by low, tree-clad hills. Because of the many parks, and the trees which line the streets, we hardly notice the many large buildings and houses from the air.

As we drive from the airport to our hotel, we look about us eagerly. Brisbane is the fourth largest city in the Australian Commonwealth, but it is only about one-quarter as large as Sydney. It is the capital of Queensland and is the commercial centre of the state.

To understand why Brisbane is important we must look farther inland to where its wealth comes from.

Darling Downs · The inland slope of the uplands which separate Brisbane from the interior of the country is one of the most fertile regions of Australia. This is the Darling Downs, 1,000 to 2,000 feet above sea level. Because of the height, summers there are no hotter than those of the Canadian prairies and the winters are always warm. The soil is deep and black, and any crops (except those which need a tropical climate) will grow there. Nearly all the wheat in Queensland is grown in the Downs region, as well as the best corn in the whole country.

Wool from the outback · While we are in Brisbane, we hear many people mention the *outback*. Mr. Davis explains that this is the name given to the drier grazing lands inland, west of the Darling Downs, and he arranges to have a man from the outback tell us about that region.

"The outback is rather like Southern Alberta," the man tells us. "There sheep and some cattle are raised on open ranges, known in Australia as stations, hundreds of square miles in area. The produce from this area has to be shipped out through Brisbane, and the government has built railways and roads for hundreds of miles into the outback, as far as the edge of the desert.

"Livestock may have to be driven long



Australian Trade Commissioner, Toronto

Heading for the shearing shed on an Australian sheep station.

distances before reaching the railway for shipment to the coast. On the long trails, there must be enough water for the animals wherever they stop for the night.

"The first settlers in this dry inland area were called squatters. They did not buy the land. They just drove their stock in from the seacoast and took the first land no one was using. They fenced it and it was theirs."

Manufacturing in Brisbane · On our drives around Brisbane, we have noticed the many manufacturing plants. Coal for these plants, Mr. Davis tells us, comes from mines near the city. They also supply the railways. Most of the people of Queensland, however, do not work for a living in mills and factories, as do so many people in Sydney and Newcastle. They are farmers, producing foodstuffs such as sugar, fruits, grains, and meat.

A QUESTION TO ANSWER · Why does it become hotter as one travels north along the coast of Queensland?

North to the tropics · North of Brisbane the coastal uplands are farther inland and are lower than those of New South Wales. As we fly along the coast we see many small coastal towns. Though none of them are very large, each is the seaport for a part of the interior.

Around the town of Bundaberg we see the bright green fields of sugar cane, and in the middle of them, a town with wide dusty streets. A passenger in the plane remarks that they are trying to plant enough trees to shade all the streets, but that it will take a long time.

The houses we see in the town are of wood, with sheet-iron roofs. Most of them are built on stilts—to stop the white ants from getting in. This gives them a sort of open-air basement, where the wife can do the washing in the shade.

Rockhampton · Our next stop is at Rockhampton, the leading city of central Queensland. The wool of twelve million sheep passes out through the harbour at Rockhampton, and the city also has a big meat trade. Railway lines run to the cattle lands and sheep stations of the dry interior. The city is the main market centre for the rich *pastoral*, or sheep-raising, region of Queensland, and also the centre for the fine agricultural lands of the coastal valleys. Here, too, is most of the cotton-growing section of Australia.



Australian Trade Commissioner, Toronto

Pandanus palm, or breadfruit tree, on the Great Barrier Reef.

Northward again · As we continue our trip northward, flying above a winding road, we see here and there a cloud of yellow dust made by a car or truck making its way in and out among the bush and gum trees. Much of the forest we see looks brown and lifeless. One of the passengers points to the smoke of bush fires destroying more timber, and to the dead trees, and says, "Every tree murdered in Australia is a blow at the country's life. There are already far too few trees, without killing those we have."

Presently we see below us the seaport of Mackay, with ships going in and out of the harbour. We do not stop, but go on to Townsville, another port farther north. Here, too, is a busy harbour, with railways from the interior bringing the inland produce to the waiting ships.

SOMETHING TO DO · **1.** Name three ways in which Queensland men earn a living.

2. Explain why the passenger said that every tree murdered is a blow at the country's life.

The Great Barrier Reef · From Townsville we take a boat out to sea, across the calm blue water to the world-famous Great Barrier Reef. This is a maze of coral reefs, islands, and shoals stretching for 1,250 miles northward to beyond Cape York. In places the reef is thirty miles wide, and between it and the coast is one of the safest shipping routes in the world.

In the pools of water among the islands is a vast aquarium of tropical fish. Not only are there many herring and mackerel, but also parrot-fish, giant squids, the famous dugong, that is supposed to look like a mermaid, and even some sea serpents. There are also underwater gardens of many-coloured coral and seaweed, such as we saw off Bermuda. Scientists from many lands have lived on the reef to study the sea life there. It is a favourite place for tourists too.

Sugar-cane plantations · We return to Townsville and board our plane once more, bound for Cairns. All the way from the Queensland border along the eastern coast of Australia we have been seeing scattered sugar plantations. Near Bundaberg and Mackay they became more numerous, and as we approach Cairns we see many more. A doctor who is travelling on our plane tells us something interesting.

"At Cairns, within seventeen degrees of the equator," he says, "workers of European origin grow and cut the cane, crush it in mills, and extract the sugar. In other parts of the world this work is usually done by coloured people, for it is thought that white men cannot work hard in the tropics. Here white men, working in the tropical sun, do the work well and earn high wages."

When we ask how they can work in this part of the tropics and remain healthy, he replies: "We think it is the hard outdoor life that keeps people healthy. Here the white man has got out of the lounge chair on the verandah and does work that a Negro or a Chinese does elsewhere. You can see the kind of Australians this land makes. They are tall and lean, brown and stubborn.

You'll sec plenty of them around, in old felt hats and shorts or shabby overalls, and they are tough."

This tropical coast of Queensland, Mr. Davis tclls us, has heavy rainfall in the summer when the sun is overhead. At other times there are dry spells when water has to be pumped from wells to irrigate the sugar lands.

Dairy farms · A man on the plane mentions his dairy farm, and we are surprised to learn that there are pasture lands and dairy cattle within fifty miles of the tropical sugar-cane plantations of Cairns. The reason is the high land near the coast, known as the Atherton Tableland or Plateau. The rainfall on these cooler uplands helps grass to grow well, and dairy cattle thrive on it.

Cairns · Our plane comes down at Cairns, which is another seaport much like those we have already visited, with a busy harbour and a railway from the interior. As we drive to our hotel we see lightly built houses with wood and glass walls and sheet-metal roofs. Like those farther south, thcy are built up on piles. Such houses are ideal for the tropical heat. But Cairns and other towns on the north Queensland coast have more to worry about than the heat, the drought, and the heavy seasonal rains. This is a cyclone area, and when the great winds sweep the town such lightly built homes are often carried away.

Men from the "Never, Never" land · In Cairns, wc see strangers who do not seem to be at home in a modern city. They have comc to town from homes in the far north on the Capc York Peninsula, or out west toward the Gulf of Carpcntaria. They may have crossed a thousand milcs of dry land to reach the coast. Some are cattlemen or drovers, othcrs are miners, shark fishcrs, pearlers, engincers, tradcrs, doctors, or governmcnt officials. Thcy have come by train, by car along the dusty trails, on horseback, or on foot. Some have arrived in small planes.



Australian Trade Commissioner, Toronto

White men do hard work in Queensland's tropical sugar cane fields.

These men are from what Australians call the "Never, Never" land. Since we cannot get them to tell us much about their part of the country, we ask Mr. Davis for help. This "Never, Never" land, he tells us, is a vast area of tiny settlements that look something like Canadian prairie towns of fifty years ago. The wooden shacks have iron roofs, the streets are hot, dry, and dusty, except after rains, when they become ankle deep in mud.

FROM CAIRNS TO DARWIN

On again · It is time to leave Cairns and continue our plane trip. At the airport we see planes waiting to lcave for Port Moresby, in New Guinea, north of Australia, and for Sydney to the south. Just as we are about to take off for the west, a small Red Cross hospital plane lands, carrying a sick patient from somewhcre inland. These planes do work like those in Saskatchcwan, bringing to hospitals peoplc from distant places where medical scrvice is not very good.



Photo: A.N.P.A.

Australian natives hunting small game. Notice the typical grasslands of northern Australia.

Cattle and sheep country · As we fly inland from Cairns, we cross great sheep and cattle ranges. Mr. Davis tells us that in some places here the air is very clear and dry and the lack of cloud makes the nights cooler, so that it is more suitable for European settlers. Even when temperatures in the daytime are as high as 115°, so long as the air is dry people can go about their work, rounding up the cattle, herding sheep, or driving loaded trucks or wagons to the wool market. It is the damp heat of the coastal lowlands that is hard to bear.

Dry-land mining towns · As we near the town of Cloncurry, we can see the sun shining on railway tracks below us. Off to the north we see a branch line with a freight train on it. This, Mr. Davis says, leads to Mount Isa, where lead, copper, and zinc are mined, as well as some gold.

Some mining towns, especially in deserts, may not last long once all the ore is dug out of the ground, because there is nothing else for people to do there. Then little remains but dumps of waste rock and old buildings. Here on the rolling prairies of Australia, however, there will always be food and work raising stock, if the land is used carefully, even though the minerals in the earth should be exhausted.

Beyond Cloncurry · After we leave Cloncurry behind, there is not much to be seen from the air. The ground below is brown and yellow and the sky is a deep blue. Although our map shows a river, we cannot find it, as it has dried up. There are a few small railway towns, with cattle trails leading to them, and here and there is a lonely shack, but nothing more. Our pilot tells us when we cross the border from Queensland into Northern Territory.

Natives · Since there is nothing of interest to look out for, Mr. Davis tells us about the aborigines who still live in this remote region. Some of them are wild and uncivilized. They roam their old hunting grounds, living on any small animals they can spear, and on fish, snakes, and insects. Others work on the cattle and sheep stations or ranches. They are employed as trackers, to follow the trails of lost animals. Some of them are excellent horse trainers and cattle drovers. At a few settlements there are native schools, rather like the Indian schools in Canada, where native children can be trained in the ways of white men.

Over the Barkly Tableland · Presently the pilot tells us that we are flying over the Barkly Tableland. "Some of this land," he says, "is good cattle country, but it is a very long way from the railways which must take the meat to market.

"These northern grasslands sometimes get enough water for grass and livestock, and they may even get too much when the monsoon rains pour down for a few months. I've seen the river beds flooded, lakes spread out for many miles, and all the water holes filled. For the rest of the year, however, there is no rain, the streams dry up, and sometimes many cattle die from thirst.

"You may have seen kangaroo-leather shoes on sale in Canada. They probably came from this area, for a few hunters make

a living shooting kangaroos on the dry scrub land."

Route for a railway · Some time later, as we look down on the rolling dry plains below, Mr. Davis says: "Along the route we are flying there may some day be a railway. It would connect Darwin on the northern seacoast with southern Queensland and the large cities of southeastern Australia. On its way it would pass through the best of the dry northern area where cattle and sheep can be raised.

"At present it is not possible to cross Australia from north to south by train. A railway was built southward from Darwin. It reached Birdum, a distance of 300 miles, and then stopped. Another line was built northward from the south coast to Alice Springs, in the heart of the continent. The rest of the line, joining these two railway towns, has never been finished. About 700 miles of new railway are needed to complete it."

Transcontinental road · We are 800 miles west of Cairns when we see a road below us. "When the Second World War was going on," the pilot tells us, "Darwin was attacked from the air and an overland highway was needed to carry men and supplies to aid it. This road was built partly along the railway route. Now cars and even buses operate over what is one of the longest semi-desert runs in the world. For the rest of our way to Darwin, we can follow it and the railway."

Following the road, we fly over small towns many miles apart. Some are cattle towns, others were first started as telegraph stations. Most of them have but one main street, with a few small stores and some houses. Some have airfields, used by the ambulance planes and by those flying the mail or carrying passengers.

Approaching Darwin · As we draw near the coast, we can tell that this is a wetter area because instead of scrubby bushes we now see trees. Then we see a river, with dark green forest along its banks.



Australian Official Photo by W. Brindle

An air view of Darwin and the harbour.

Before we reach Darwin, Mr. Davis tells us something about the town. "You'll see that Darwin is a small town," he says, "but it is important for a number of reasons. It is the part of Australia nearest to Asia and Europe, and the telegraph cables under the sea end here. Its airport is important because large air liners travelling the world's air routes use it as a calling place on the way to other Australian cities. As a seaport it is the place from which the cattle products of the north are shipped overseas. Many of the cattle from the dry interior are driven down to Darwin 'on the hoof,' but others are brought by truck. Some meat is even carried by air from distant stations to refrigerator ships in the harbour.

"Northeast of Darwin is the Arnhem Reserve, rather like the Indian reservations in Canada. There the natives live very much as their ancestors did long ago."

Wet land, dry land : "It makes a great deal of difference in the Darwin area as to when you see it," Mr. Davis tells us. "In the hot season, when the rains are pouring down, the land may be flooded and the trees and bushes become green and fresh. Then, by April, the rains have ceased, the winds have died down, and there may be little or no rain until October. Dry winds blow out from the desert,

and the grass withers, the pools dry up, and water must be obtained from deep wells. This is a hard part of the country in which to make a living." As Mr. Davis says this, the wheels touch down on the huge airport.

Darwin · We are not to stay long at Darwin. As it is a small town of fewer than 5,000 people, we can see most of it in a few hours. The town is built on a low headland on the north side of a large inlet of the sea. Along the shore there are mangrove swamps in some places. In the town we admire the beautiful park, and even see some houses with green lawns and large shade trees. About fifty miles south of Darwin, at Rum Jungle, there is an important radium and uranium mine.

SOME QUESTIONS TO ANSWER · **1.** Why do world maps usually mark the tropics of Cancer and Capricorn?

2. Why have railway lines been built westward from the coast cities of Queensland into the interior?

3. What work do the aborigines do for white people in the Australian tropics?

4. What do Australians mean when they speak of the outback?

5. Why would a railway from Queensland to Darwin be more useful than one across the central desert from north to south?

AIR ROUTES · Find, on a world map, the route taken by planes from Darwin to London.

A LIST TO MAKE · You have read that Darwin is a small town. Make a list of reasons why it is not a large city like Sydney or Brisbane.

AUSTRALIA AND SOUTH AMERICA · We have travelled along the Australian coast from latitude 35° S. near Sydney to latitude 17° S. near Cairns. Then we turned inland for about 800 miles across grasslands.

1. Look at the map of South America on page 125. On it find a place near latitude 35° S. on the east coast of South America and another at about 17° S. on the same coast. These two places are in locations like Sydney and Cairns. Now draw your finger inland from the place like Cairns. That is the way we travelled to reach the Barkly Tableland in Australia. Compare the conditions in these areas of Australia and South America. Are they anything like each other? Think about each of the items in the list below and then make up your answer about them.

Are the two areas like one another in (*a*) rain all the year or rain only in summer? (*b*) the direction of the winds? (*c*) the ground covered by forests or grasslands? (*d*) the land used for cattle- or sheep-raising? (*e*) cities along the seacoast with railways running inland?

2. (*a*) Are there mountains in South America like those near the east coast of Australia?

(*b*) If Australia had a large river located like the Paraná, where would it reach the sea?

3. Show with your finger on the map where the Great Barrier Reef would be if it were near South America instead of being off the coast of Queensland.

FROM DARWIN TO PERTH

Western Australia · While we are waiting at the Darwin airport for our plane to Perth, the capital of Western Australia, there is time to look at a guidebook to read about the state we shall soon be visiting.

Western Australia, we learn, is the largest state in the country, but fewer than half a million people make their homes in it. Although the state includes a third of the land in Australia, most of it is empty. Within its boundaries is a large part of the dry interior of the continent. In most of it, men cannot live by farming, because there is not enough water for the raising of crops and animals. The summers are very hot indeed. There are some places where more people could settle, but they would be so far from railways and seaports that they could not sell the produce from their land.

On our way again · Soon we are in the air once more, and Darwin fades in the distance

as we head along the coast for Wyndham. The land below us does not look very exciting. It is mainly dry and brown and dusty, except for the blue sea. There are several wonderful natural harbours along the coast, but there is not much trade for them.

The Kimberleys · "The land off to the south of us," Mr. Davis tells us, "is the best cattle country we'll be crossing. It is the Kimberleys, a plateau area with a tropical climate. There are some real rivers in places and they don't all dry up. The cattle and sheep raised there are taken down to the coast by plane. There are three main ports, Wyndham on the north, then Derby, and Broome. We shall see them from the air."

Wyndham · Presently we come in sight of the little town of Wyndham. As we fly over it, Mr. Davis points out the meat-packing plant, and calls our attention to the harbour, from which the frozen meat is shipped, mainly to Malaya. "The meat-packing plant," he tells us, "works only a few months in the year. When it is shut there are only about fifty people in the town."

Iron for the future · Some time later, Mr. Davis points out King Sound, with the town of Derby at a river mouth on its shore. Then he points to the right. "Do you see that island out beyond the sound?" he asks. "That is Yampi. I have been told that one of the great iron-ore reserves of the world is there. Some iron is being mined now, but it is a very long way from the coal needed to smelt it—and our steel industry is at Newcastle, on the other side of Australia. Some day, I think, there may be a large iron-mining town here."

Broome · We cross the sound, and continue on along the coast. "Below us now is Dampier Land," Mr. Davis says. "It is named after a wonderful old explorer and pirate who sailed here centuries ago. You should read about him in a reference book.



Australian National Travel Association

Low tide at Broome. At high tide this ship will be afloat in 30 feet of water. Broome has the highest tides in Australia. Where in Canada do we have such a difference between high and low tides?

"The town in the distance is Broome. It is the biggest town along this coast, but even so, it is not large, as you can see. While we fly over the town, you may like to hear what people do down there. One of their chief industries is pearling."

Pearling · Mr. Davis goes on to tell us about pearling. "About a hundred years ago, when pearling began here, the work was done by natives. They would dive down in the water, cut the oysters loose, and bring them to the surface. Later *luggers*, which are a kind of small sailing boat, were used to get

A diver going down after pearls.

Australian National Travel Association



the shells from deeper water. Diving suits had to be used then, and the natives didn't like them. Other divers were brought in from Asia. There are now about 3,000 *Asiatics*, as people from the countries of Asia are called, living at Broome. They have special permission to do so, for coloured people are not allowed to settle in Australia. There are also about 300 Australians living in the town.

"When the oyster shells are brought up from the water, they are opened, and any pearls they may contain are taken out. Then the oyster itself is dried and shipped to eastern Asia for food. The shells are cut up for mother-of-pearl."

On along the coast · While Mr. Davis has been talking, we have left Broome far behind. This part of the coast, the pilot tells us, gets storms rather like the hurricanes of the West Indies. Such storms, here called "willy willies," sometimes do tremendous damage.

Below us we see a long sand beach. It runs south, Mr. Davis tells us, for eighty miles from Broome. At low tide a car can be driven the whole way along it.

Hot, dry interior "I once spent Christmas Day at Marble Bar, some miles inland to the east of here," Mr. Davis says, "and I shall never forget it. The temperature reached 115° in the shade. The people told me that the year before the thermometer had reached 109° every day for twenty-one weeks. We were taking some bags of feed to the cattle country inland, because of the drought. The feed had come all the way from Perth in the far south. Usually there is some vegetation in the interior and there are a few large cattle stations, but I don't think there will ever be a big population along this part of the coast."

Monte Bello Islands · Out to sea to the west, we can see the Monte Bello Islands. Mr. Davis points them out to us and tells us that that is where the first British atomic explosion took place, in 1952. The place was chosen because it was so far from any settlements.

Mining towns · Below us we see a town which the pilot tells us is Geraldton. "When you see a railway line running inland, like that one down there," he tells us, "it means there's a mining town in the interior. People will live even in a desert when there is gold to be mined. It is so valuable that it pays for the supplies needed, all the machinery, the railways, and good wages for the men." It reminds us of the oil fields at Talara, in Peru, and the nitrate mines of the Atacama Desert.

SOMETHING TO THINK ABOUT · Look at the population map of Australia on page 159. Examine it carefully to see what parts of Western Australia have been chosen by settlers as homesteads. You will notice that most of the people live in the southwest corner. From what you have been reading, explain the reasons why they do not live in the northern and eastern part.

A PROBLEM · There are nearly three times as many people in Sydney as in all Western Australia. What are the two most important reasons for this?

A REASON TO FIND · The west coast of Australia was the first part of the continent to be discovered. It was among the last parts to be settled. Why?

JOBS IN A DRY LAND · You are asked by a young man who wants to live somewhere in Western Australia north of Perth, what kinds of work are found there. Make a list for him.

Approaching Perth · Soon we are in sight of the Darling Range. This is really the edge of a plateau, like the Laurentians on the north shore of the St. Lawrence in Canada. Here the countryside is still very dry until we are within sixty miles of Perth, a city lying between the plateau and the Indian Ocean. Then the scenery changes completely from

what we have been looking at for so many miles in the north. There is no longer desert sand, bare rock, or dried-out scrub. The grass looks bright green after the yellow and brown that we have been seeing for hundreds of miles. There is enough rain for the growth of large trees. Here, we are told, rain falls in winter, although summers are hot and dry.

Perth and Swanland · We stay at Perth for a few days, and go sight-seeing every day with a guide. Perth is the centre of Swanland, the district drained by the Swan River. This stream winds through the city and spreads out into a lake, before it flows to the sea at Fremantle, the port for Perth, twelve miles away.

Perth was settled more than a hundred years ago, but it looks newer. The buildings are all modern. One reason for this is that it has grown very rapidly in the past few years. It was only a very small town sixty years ago. Now more than 200,000 people live there. Its growth has been caused partly by the gold mines of the interior.

Good farming · On trips made into the countryside we find that, where Swanland has been cleared of forest, there are often good farm lands. Dairying and fruit-growing are most important, and farmers usually grow enough grain for their own use and a little for export. The wheat grown there is winter wheat, which, as you know, is planted in autumn and remains in the ground during winter when the rains aid its growth. It is harvested in early summer when the weather is dry and hot.

Giant trees · The southwestern corner of Australia is world-famous for its giant hardwood trees. The two best-known kinds of trees are the karri and the jarrah. They grow on the plateau east of the Darling Range from near Perth southward to Albany. Mr. Davis says that the karri may be three hundred feet high, and its roots have been found fifty feet underground. There is frequently more than thirty inches of rain in a year and winter temperatures in this corner of the continent are cool. This is a good climate for trees.



Australian Trade Commissioner, Toronto

Perth from the air.

We know that in eastern Canada the heavy snow on the ground and the flood of water in the rivers in spring help lumbermen to get trees out of the forest. In Western Australia the giant logs have to be moved in a different way. They are cut up into sections where they are felled, and are then

Horses hauling jarrah logs through the forest in Western Australia.

Australian Trade Commissioner, Toronto





From Ewing Galloway

Gold-mining in Kalgoorlie.

hauled by oxen, horses, or tractors to the sawmills. The wood is used for railway ties, for making heavy beams, for building docks, and as a surface for roads.

SOMETHING TO THINK ABOUT · Swanland is the most prosperous part of Western Australia. Has the climate anything to do with this?

A PROBLEM · During what months is wheat harvested in Western Australia?

FROM PERTH TO ADELAIDE

Since leaving Sydney we have travelled on three sides of Australia. First we went north to Cairns, then west to Darwin, and then south to Perth. Now we shall turn east to Adelaide in South Australia.

Transcontinental railway · As we are leaving Perth, Mr. Davis calls our attention to the railway tracks. "In 1917 engineers finished the 1,100 mile transcontinental railway across southern Australia," he tells us. "We shall see many miles of this long line through dry grasslands as we fly eastward."

On to Kalgoorlie · We rise over the tree-clad slopes of the Darling Range. In one valley we see the Mundering Dam, which holds back river water. From the lake it has made, water is piped for 350 miles across the desert to the mining town of Kalgoorlie. We can see the big pipeline from the air. Here and there are pumping stations which force the water on its way.

When we first left Perth, we were flying over small farms, with houses, barns, and haystacks much like those in parts of Canada. Now the trees become fewer and the grass becomes yellow as we enter a region of little rainfall. Patches of green show where water from the pipeline has been used to irrigate the crops. Before reaching Kalgoorlie, we are once again over the desert.

Gold-mining towns · Kalgoorlie is the main town for a number of gold mines south of the railway. When gold was discovered in this district, many adventurous settlers rushed there from distant lands. For three miles between Kalgoorlie and Boulder City, we fly over dumps of waste from the mines. Some gold is obtained from these old dumps by modern methods. A few miles away are "ghost towns" like Coolgardie, where streets are empty and the buildings no longer used. When all the gold has been removed from the rocks at Kalgoorlie, and the mines closed, what use could be made of the water which is now needed in the mines and refineries?

The Nullarbor Plain · From Kalgoorlie on, there is little to notice below us except the gleaming tracks of the railway, which runs so straight that in one place there is a stretch of 300 miles without a bend.

Soon we are flying over the Nullarbor Plain (*Nullarbor* means "no trees"). Little grows but *saltbush*, a small dry bush which grows where the soil is salty. The ground here is made of limestone. Any rain that falls sinks into the ground where there are underground caves. Now and then we see a small railway town, and once we land at a desert airport, where a fine hotel has been built to take care of travellers. About halfway across the plain, we cross the boundary into the state of South Australia.

The lake country · We fly on, following the railway which, for a distance of a thousand miles, does not cross a permanent stream. Farther on we see scrub bushes and small, dried-up trees covering the reddish earth. Mr. Davis tells us that we are reaching the lake country of South Australia. All the lakes are salt lakes, he says, and for most of the year they are dry. Yet fifty miles to the south, where damp sea breezes blow in over the land, there is good wheat-farming country.

A rift valley · At last the dry lands are behind us as the sea appears far off to the south. We are coming to Port Augusta, on the shore of Spencer Gulf. On the far side of the gulf we can see the Flinders Range.

Spencer Gulf is different from most inlets of the sea, Mr. Davis explains. It lies in part of what is known as a *rift valley*. Long ago cracks, known as *faults*, appeared in the earth's crust. The land between them slipped down lower than the land on each side. The valley which was formed in this way is called a rift valley. On the map on page 188 you can find the higher lands to the east and west and between them the land which slipped down to form the rift valley.

The southern end of this valley is flooded by the sea to form Spencer Gulf. The northern end was also once upon a time occupied by the sea, but now it is dry except for very shallow salt lakes, like Lake Eyre. Usually it is completely dry and covered with salt. A few years ago there were heavy rains. Lake Eyre became twelve feet deep and covered 3,000 square miles. It had not been so deep for a hundred years. In a year the very hot, dry weather had evaporated the water.

A QUESTION TO ANSWER · Why are there so many dried-up lakes in some parts of Australia?

On to Adelaide · After leaving Port Augusta, we fly southwards along the coast. Across the gulf to the west we can first see the high



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Lead from the smelters at Port Pirie piled on the dock ready for shipment.

blast furnace at the seaport of Whyalla. Nearby is a large shipyard. Iron ore, mined at Iron Knob, about thirty miles inland, is shipped from here 1,400 miles to Newcastle, the pilot tells us. The ships carry coal on the return trip. Because the iron ore is so rich, and is found so near the seacoast, steel can be produced very cheaply. The pilot points down to a pipe running along the ground. That pipe carries water for 220 miles from the Murray River to Whyalla and other towns.

Soon the tall smoky chimney stacks of the Port Pirie smelters are below us. They are said to be the largest metal smelters in the world. Another 150 miles of flying and we are over Adelaide and see Mount Lofty rising beyond the city.

ADELAIDE TO MELBOURNE

The capital of South Australia · Adelaide is very well planned. This was not an accident. Its streets and squares were laid out more than a century ago. On a hill above the city we see a statue of the surveyor who did the work. He chose a place for Adelaide on the banks of a stream between the Mount Lofty Range and the sea. Around the business district, he laid out a belt of parks



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Adelaide, capital of South Australia.

about a mile wide, and beyond the parks was space for homes. A few miles away, at Port Adelaide, there are now big docks, where ships call from all over the world.

South Australia, we learn, is today mainly an agricultural and stock-raising state, yet fifty-five out of every hundred of its people live in Adelaide. They depend for their living on exporting wheat, wool, hides, copper, tallow, butter, meat, and wines. Except for the copper, all these products need rain. Is this a part of Australia that has plenty of rain? We visit the weather bureau, where the weather man, or *meteorologist*, is glad to tell us what he can.

Winter rain · "The rain here," he says, "comes mainly in the cooler part of the year. The same thing happens at Perth, which you visited not long ago. The rain is brought by westerly winds from the Indian Ocean. Up on Mount Lofty, to the east of our city, the yearly rainfall is about forty-eight inches, but down here at sea level it isn't quite half as much. Our rainfall averages about twenty inches a year—about the same as you get in Winnipeg. It is enough for the growth of the fine fruits you can see in the orchards, and for the grapes which we make into wine for export. It is also enough to keep our parks and gardens green. Farther north from Adelaide there is less rain. Beyond the fruit-growing area, one can travel for another 250 miles through the drier wheat-raising country, which looks pretty much like your Canadian prairies. Farther north still, where there is not even enough rain for wheat, the land is used for raising cattle and sheep. Beyond that nothing much is grown, as it is practically desert."

Rich farmlands near Adelaide.

Australian Publicity & Tourist Bureau



Wool sales · The weather man asks us if we have been to one of the wool sales yet. When we say we have not heard about them, he goes on to tell us. "Wool, you know, is really the backbone of this country. When the price paid for wool is high, we are rich; when the price falls, we have less money to buy goods from abroad. If you go to a wool sale, you will find buyers from many foreign countries. You'll see men from Britain, France, Belgium, the United States, Germany, Japan, and, of course, Canada. You have probably noticed the *jumbuck*, our slang word for sheep, on our shilling coin. So important is the sheep to our country that it is the national animal of Australia."

SOME RAINFALL QUESTIONS · **1.** Name another region in the southern hemisphere which has winter rain like the Adelaide area.

2. During which months is there rain at Adelaide? Is there likely to be rain at Christmas time?

3. The weather man at Adelaide explained that the winter rains there are brought by winds from the sea to the west. How do you explain the fact that Mount Lofty gets more than twice as much rain as does the city of Adelaide?

Northward from Adelaide · We have been offered a trip in a private plane from Adelaide to a sheep station some miles north. From there we are to be flown to the mines at Broken Hill, and there we can get the regular plane to fly south to Melbourne. On this flight we shall cross from South Australia into another state, Victoria.

Early the next morning we take off from Adelaide and fly northward. We leave Mount Lofty behind on our right and fly towards the low Flinders Range, which runs northward for 400 miles. The land over which we are flying is used mainly for fruit-growing, since it receives enough rain and much sunshine. On the western slopes of the hills, which get the afternoon sun, we can see vineyards where grapes are grown. Later we see fewer orchards and more large farms growing wheat. Most of the sheep stations north of Adelaide are also wheat farms, our pilot tells us. After the grain harvest, the sheep are turned loose to feed on the stubble left in the fields. The wheat grown in this state is of excellent quality, and Adelaide is the most important grain port in Australia.

Visiting a sheep station · The sheep station we are to visit is a few miles north of the Murray River. We make a rather bumpy landing on a long grass runway. Mr. Thompson, the owner of the station, is there to meet us. As we drive towards his home, he tells us about his work.

"Sheep stations are very large," he says. "Rainfall is light, and grass and shrubs are scanty. Each sheep needs a large amount of land on which to feed. On some stations it may be a hundred-mile ride from the owner's house to the end fence of his land."

Mr. Thompson's home reminds us of the one we visited on the Argentine estancia. The house is large and is surrounded by lawns, flower beds, and shade trees. Nearby are barracks and houses for the workmen. Farther off are stables, a blacksmith shop, a machine shop, and a laundry, and beyond are wool sheds and stockpens. Not far off is a high windmill to pump water from the wells, and we can also hear a gasoline pump working somewhere. Beyond the pens is the "water hole," as they call it. It is really a very large pond. We are told that in dry years it may become just an empty, sun-baked hollow in the ground.

Millions of rabbits · Mr. Thompson calls a young man over to speak to us. "Jim," he says, "can you tell these visitors anything about rabbits?"

Jim smiles. "There is plenty to say about them," he replies. "Someone brought a few into the country many years ago and they escaped. Now there are millions of wild ones. They eat the pasturage we need for the sheep. All sorts of ideas have been tried to get rid

Shearing a sheep with electric shears.

Australian Trade Commissioner, Toronto





Australian Trade Commissioner, Toronto

The wild dingo is a vicious sheep-killer.

of them. We usually spread out poisoned food, but that doesn't always kill them. Very long and expensive fences were built to stop them from spreading, but the rabbits got past them.

"The trouble is that five rabbits eat as much as a sheep. The more rabbits there are, the fewer sheep can graze. I have heard that we lose about a hundred million dollars a year because of rabbits.

"Around here we think we have them beaten now. Some clever scientists have found a disease that only rabbits can catch. This is spread by flies and mosquitoes. Many of the rabbits in this part of the country have died of the disease in the past couple of years."

Station jobs · Mr. Thompson thanks Jim, then goes on to tell us more about work on the station. "I'm afraid that this visit to a sheep station may be disappointing to you," he says. "For most of the year you don't see very many sheep. They are divided into small flocks, scattered over several hundred square miles of grazing country. It is only at shearing time, usually in the spring, that many sheep can be seen together. That is the busy time of the year. Then, as well as the men who work on the station, we employ travelling shearers. These men begin shearing in August in the northern part of Australia and work their way south through the sheep-raising areas. They reach us here in the south late in October.

"We need expensive equipment to do the work quickly, for we must shear thousands of sheep in a short time. Our shears are run by electricity. An expert shearer can handle more than a hundred sheep a day.

"The fleeces each weigh between eight and ten pounds. They are cut off in one piece, trimmed, and sorted into piles according to quality. The piles are pressed down by a huge machine, and are then wrapped in coarse cloth and bound with metal strips.

"Trucks, or high-wheeled carts drawn by oxen or horses, carry the wool to the railway. Most sheep stations are between twenty and a hundred miles from a railway, and the wool must be transported a long distance before it reaches a freight train. In the old days we used to ship wool part of the way on barges on the Murray River, but little wool now goes that way."

Farewell to the station · Mr. Thompson drives us back to the plane. As we go aboard, he calls to us, "Tell the Canadians to keep on wearing wool in winter. It helps my business!"

A PARAGRAPH TO WRITE · Imagine that you are a travelling sheep-shearer from Queensland. Describe a day's work on a station in South Australia.

Dry land below us · We take off, and our plane heads northeastward across country that looks more and more like a desert. The yearly rainfall here is less than ten inches, the pilot tells us, and this region is very hot in summer. Only those plants can grow that need little water or that have long roots which can reach deep down into the earth to find moisture. Where grass does grow, it is soon scorched by the sun. We see a few scattered sheep stations. As the grazing land

becomes poorer, the stations have to be bigger so that the sheep may find enough to eat. The houses here are simple wooden bungalows, and the nearest neighbour may be fifty miles away.

Soon we see below us a railway line. As we fly above it, we see trains of ore cars. They are going from the Broken Hill mines to the smelters at Port Pirie on Spencer Gulf, north of Adelaide. You can follow the railway on the map on page 162. It is at Port Pirie that the minerals are removed from the ore in the large smelters.

Into New South Wales · About twenty miles before we reach Broken Hill, we cross the border between the states of South Australia and New South Wales. This boundary is marked by a "dog-proof" fence to keep the *dingoes* out. These wild dogs kill lambs in thousands. A reward is given for trapping, poisoning, or shooting them.

We land at Broken Hill just in time to avoid the rolling red clouds of a dust storm. Such storms often sweep across the drier parts of Australia. They come from land where the grasses are gone and the soil is being blown away.

A mining town · The town of Broken Hill is a famous mining centre where there are rich deposits of ore containing much lead, silver, and zinc. The minerals were first found in a dry, rocky ridge called Broken Hill. The top of the ridge has now been mined away, and the work is still going on. On the south side of the town there are big red hills made of waste from the mines.

On from Broken Hill · The plane in which we leave Broken Hill is scheduled to stop at Mildura on the way to Melbourne. Just after we take off from the airport, a tall, sunburned man who is sitting near us says, "You'll find it a pleasant change at Mildura after the red dust of this part of the world. Down at Mildura irrigation has changed



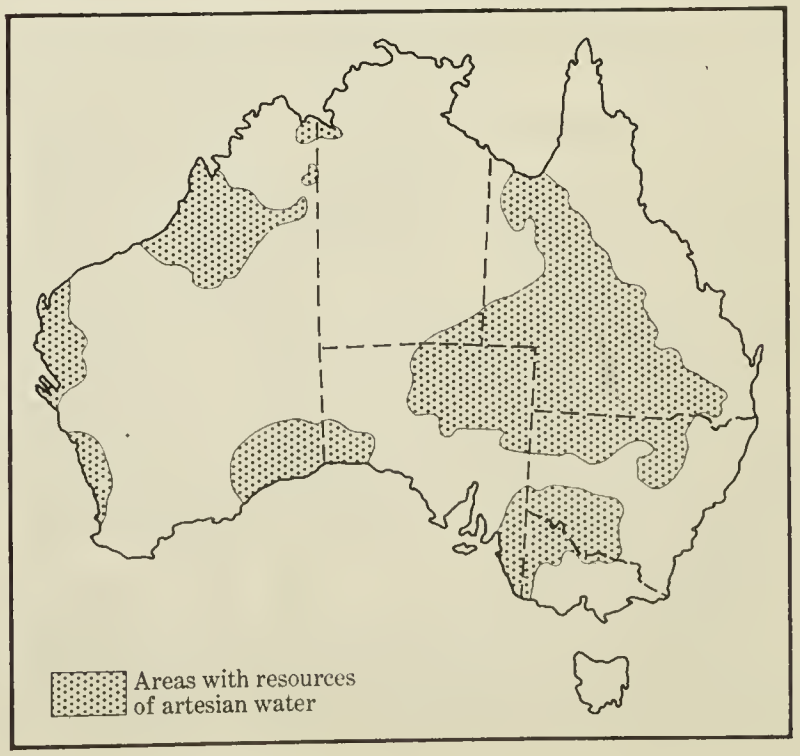
Australian Trade Commissioner, Toronto

Mining at Broken Hill.

everything, and fine fruit is grown there. Look, down there on the left is the Darling River. We'll follow it until it joins the Murray, which comes in from the mountains of New South Wales. Those two rivers provide water for irrigating a lot of land. Of course, away from the rivers, you can sometimes get water from flowing wells. We call them *artesian wells*. Some go down seven thousand feet. From the wells the water flows in ditches across the fields, sometimes for many miles. As you know, much of Australia has

Artesian basins in Australia.

Australian Trade Commissioner, Toronto





How water collects in artesian basins.

low rainfall. We are fortunate to have about 600,000 square miles of land where water has collected deep underground. Rain falling on the uplands far away in east Queensland soaks slowly down through the rocks until it is under this part of the country. In this way, the water we get in artesian wells comes from the wet winds of the far-off Pacific."

As we fly downstream along the Darling River, we see cultivated land spread out along the river banks. Then we turn east to the city of Mildura, which is located near where the Darling and Murray rivers join. In the early days, our friend tells us, it was almost impossible to grow anything here. There is plenty of sunshine, but too little rain. In time, however, men learned to use the river waters to irrigate the land, and a great change took place.

Canadian pioneers · Our friend tells us about the irrigation and fruit-growing near Mildura. "You will be most interested in this," he says. "Two Canadian brothers named Chaffey began it. After experimenting first in California, they came to Mildura and the Murray River district. There wasn't much but dry land, rabbits, and a few poor fruit trees, but they bought it all, and another place farther down the river as well. They made both into fine fruit-growing regions by irrigating the land with water pumped from the Murray River.

"Later on, the government began building great dams on the rivers, especially in the mountains, to catch the spring flood waters. One of these dams made a lake about thirty miles long and three miles wide. Even the mouth of the Murray River has been dammed to keep out the salt water of the sea. On the inland side of the dam there is now a huge, freshwater lake. The water is used for irrigating more land and growing still more food."

Fruit for export · After crossing the Murray River into Victoria, we land at Mildura. Friends of Mr. Davis drive us around to show us what water can do in a dry land. We see fruit trees, fodder crops, pastures, and gardens cut into squares and oblongs by irrigation ditches, and we visit one of the local fruit-canning factories. Near Mildura, and farther up the Murray River in the Riverina country, are produced some of the milk, cheese, vegetables, and the peaches, apricots, oranges, and other fruits for which Australia is well known.

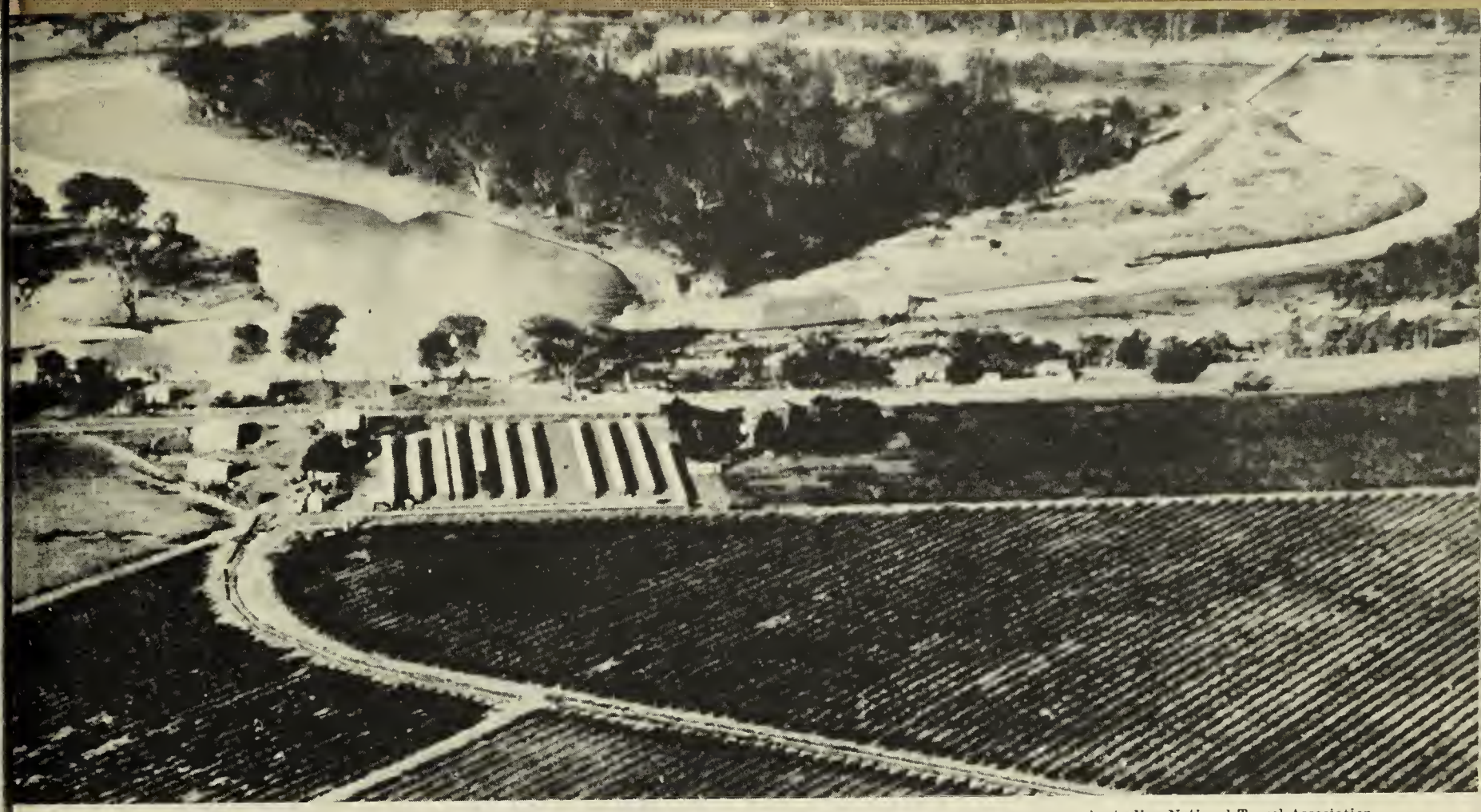
SOME THINGS TO DO · **1.** Find out where the raisins, currants, and other dried fruit used in your home have come from. Were any of them produced in Australia? What are raisins before they are dried?

2. Try to find out more about the Chaffey brothers, George and William, who began fruit growing at Mildura and Renmark.

3. On the map on page 162 locate the Riverina country between the Murray River and the Murrumbidgee River.

4. Read more about artesian wells in Australia in reference books. Find out if we have artesian wells in Canada.

On to Melbourne · The rest of our flight to Melbourne is across country which becomes greener as we go south. This is a part of Australia with a wet season in the cooler part of the year. In some parts there is enough rain for giant trees and fine natural grasslands. To other Australians the state of Victoria seems so small and green that they sometimes



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An irrigation dam and irrigated vineyards at Mildura.

call it the "cabbage patch." We wonder what the Victorians call the huge dry areas of the north and west?

We pass over a city, Bendigo, and the pilot tells us about another, Ballarat, in the far distance off to the right. They are among hills which separate the Murray Valley from the seacoast on the south. Both cities are rich gold-mining centres.

The first crowds of people to settle in Victoria came there to find gold. About a hundred years ago there was a rush of gold-miners from many parts of the world, and some of them became very rich at Bendigo and Ballarat. Some of the money made was used to build towns, to buy farmlands, to make railways and roads, and in other ways. This gave Victoria a good start and it is now, with New South Wales, the most important part of Australia.

Once over the hills we can see the sea, and soon we land at the edge of Melbourne, the capital of the state of Victoria. We have been in five states and one territory since we left Sydney. Can you name them all in the order in which we visited them?

Melbourne · We visit downtown Melbourne and find it something like Toronto, with straight streets, square city blocks, big banks and other business offices, and large stores. There are many arcades—narrow, covered-in streets with small stores, where shoppers are sheltered from the cold and rain in winter.

As we drive around the city, we notice several large stadiums. Our driver explains that, like all Australians, the people of Melbourne like games and sports. Huge crowds attend the football and cricket matches and the horse races.

When we finish our drive, we look in our guidebooks to find out more about the city. Melbourne, we learn, was for many years the largest city in Australia. Although now second in size to Sydney, it has more than a million residents. It has many industries, most of them producing goods for local use.

There are several reasons why Melbourne is important. The surrounding country is a



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Melbourne, on the Yarra River.

rich farming and grazing area. Railways reach the city from seven different directions, bringing in and taking out people and produce. The city is built on flat land with room to grow. The harbour is large, and is deep enough to allow large ships to enter. What cargoes do you think the ships carry away with them? Can you list six kinds of cargo?

Melbourne is fortunate, too, to be near a good supply of fuel which provides power for its industries and heat for its homes. Modern industries and dairy farms require a good supply of cheap electricity. There is no oil in Victoria, and few water-power resources, but there is, however, a tremendous supply of coal nearby. This is a brown coal, called *lignite*. Some of the layers of coal in that area are 300 feet thick. It is mined quite easily, for it is near enough the surface of the earth to be dug out with giant electric shovels. Melbourne and much of the rest of Victoria are supplied with electricity from a power plant which uses this coal as fuel.

A good fuel supply is needed in the part of Australia around Melbourne. The summers are hot, but with the winter rains comes cool, cloudy weather. Melbourne houses are built solidly of brick, and are heated by fuel blocks made from the brown coal.

TASMANIA, THE ISLAND STATE

From mainland to island · From Melbourne, we plan to fly to the island state of Tasmania, which lies off the mainland of Australia directly south of Melbourne. Then we shall return to the mainland, visit Canberra, the capital of Australia, and go on to Sydney and our journey's end.

We take off from the Melbourne airport and fly along the edge of the big Port Phillip Bay. Then we fly out over Bass Strait toward the land we can see low on the horizon a hundred miles away.

Tasmania, we are told by our guide, includes much rugged and mountainous land, although there are coastal plains too, and many fertile valleys. The island is far enough south to be in the path of the westerly winds blowing from the Indian Ocean, and so it gets heavy rain on the western slopes of the hills and mountains, and quite a lot of snow in winter. The weather at all times of the year is cooler there than in the rest of Australia. We shall no longer need to cough and wipe our eyes because of dust clouds.

We fly over Launceston, the second largest city of the state. Because it is on the north side facing the mainland, it has more trade than other Tasmanian cities; but Hobart, the capital, on the south side, is larger.

Tasmanian hydro · As we fly over the mountain ranges we are told about one of the reasons why Tasmania is a prosperous state. We know the land is rugged and has plenty of rainfall. Those two together make something else possible—hydro power. Great Lake, which we can see below us, is over 3,000 feet above sea level. The water from it runs along a channel and then drops down more than 1,000 feet to the water-wheels at a hydro station. There are two other large hydro stations not far away. The electricity produced supplies the needs of the whole island.

Industries · Like Canada, Tasmania has a number of industries which use hydro power. "Here we have metal refineries—aluminum, copper, and zinc," our guide tells us. "We also make paper, and we have some industries, such as you have near Niagara Falls, producing chemicals. Another of the products is wheels for grindstones.

"We have about three-quarters of the hydro power of Australia here in Tasmania. The future looks bright for people living here."

Agriculture · Tasmania is, of course, mainly a farming and fruit-growing state, our guide tells us. It has long been famous for apples and pears, and for fine pastures for dairy cattle. There are also many farms where fresh vegetables are grown to be sold in Melbourne and other cities of the mainland.

Hobart · Tasmanians are very proud of the fine harbour at their capital city. It is one of the best harbours in the southern hemisphere. Can you name three other fine natural harbours in the southern hemisphere but not in Australia?

Most of the factories in Hobart use local products—wheat for flour milling, fruit for canning, wool for weaving, and so on. One thing we see here that is new to us is a bridge about two-thirds of a mile long that floats on the river instead of standing on piers.

A holiday land · We notice one other thing about Tasmania. There seem to be so many tourists. The beautiful scenery and the cool climate attract many holiday-makers from the hotter, drier parts of the mainland of Australia, and even some from overseas.

A LIST TO MAKE · List some of the reasons why Tasmania should be a good place for a home.

SOME THINGS TO THINK ABOUT · **1.** Why does Tasmania have more waterfalls suitable for making electrical power than does any other part of Australia?



Australian News & Information Bureau

A power station near Great Lake. Tasmania has good water-power resources.

2. Do you think Tasmanians might have good places for skiing? Why?

3. Try to find for whom Bass Strait is named.

ON TO SYDNEY

Back to the mainland again · Our return flight to the mainland takes us over Flinders Island. In less than an hour we are again over the coast of Victoria. We fly inland until we see below us a highway. The state of Victoria is famous for its good roads. This is the Hume Highway, which links Melbourne and Sydney, our guide tells us. It was named after a great explorer. We follow it to the border of New South Wales.

Over the highlands · The land that now lies ahead is rugged and mountainous. These are the highlands of southeastern Australia, usually called the Australian Alps. Few people live among these highlands, although there are some small towns along the railways and highways.

Some of the last great forests of the country still stand in southeastern Victoria. A forester on the plane tells us that where he comes from, farther south, there are great

forests, with towering trees and giant ferns, where many of the native animals are still to be found. Parts of the area are now kept as a nature preserve so that the animals and plants cannot be killed.

From near the New South Wales border we can see, away off to the right, Mount Kosciusko, the highest peak in Australia. Around it is the best winter sports area in the country. The snowfields also provide plenty of water when the snow melts in the spring. Near the state border, we saw the Hume Reservoir which keeps back some of this water until it is needed lower down the Murray Valley at places like Mildura. Do you recall what the water is used for there?

Farther to the south is one of the biggest hydroelectric projects in the world. It is to include sixteen separate power plants. The cost of building it will be high, but the people of Australia believe that it will make their country a better place in which to live. When finished, these new plants will produce as much electricity as all the present power stations in the country do today.

Canberra, a new city · We are on our way to Canberra, which is a new city being built specially to be the capital of the Commonwealth of Australia. Mr. Davis tells us how the capital came to be put in such a distant place.

"The separate states all agreed to join together," he says, "just as in Canadian Confederation, to form one country which they called the Commonwealth of Australia. The new country started officially on the first day of January in 1901. A capital city was needed. Where was it to be? The two largest cities, Sydney and Melbourne, each wanted the honour. Finally, after nearly ten years, it was decided to build an entirely new city, and a site was chosen in the New South Wales hills about eighty miles from the coast. Nine hundred square miles of land were set aside and plans were drawn up for the city. The place was named Canberra, which is a native word.

"When the land was chosen, it was being used for sheep stations. Now a garden city is being built, on a plain about 1,600 feet above the sea, with hills and mountains near at hand and a small river flowing nearby. At the seacoast the federal government has its own harbour, Jervis Bay."

It is dark when our plane nears Canberra, and we see the lights a long way off. There are long lines of twinkling street lamps that make the city look very large.

The next morning we drive around the broad, tree-lined streets. To our surprise, the city no longer looks large, because many of the buildings are not yet completed, although most of the streets are ready for them. Many city blocks are still covered with bush. We do see, of course, some very fine buildings which have been finished. There are the Parliament Buildings and many government

What do the tall trees and dense vegetation tell about the climate of Victoria?

Australian Trade Commissioner, Toronto





Australian Official Photo by W. Brindle

The Parliament House at Canberra, the capital of Australia.

offices, a fine city hall, good schools, a national library, and a museum. A university is being built, and there are also hotels and stores. There are no industries, and because of the dry climate, the only kind of farming carried on in the surrounding districts is sheep- and cattle-raising. When it is finished, this city will be one of the most beautiful capitals in the world.

Port Kembla · The last part of our flight around Australia takes us to the coast at Jervis Bay. Farther north along the coast we fly over the industrial town of Port Kembla. Two breakwaters run out to sea, and many vessels are loading and unloading cargo in the sheltered water between them.

Among the industries at Port Kembla, Mr. Davis tells us, is a copper smelter which smelts the metal out of ores brought from distant mines. There is also a modern steel works, using ore from Iron Knob in South Australia. The tall chimneys with white smoke pouring from them belong to a cement works. Other factories make fertilizer for use on farms by putting together two chemicals brought from overseas. They are phosphate rock from the island of Nauru in the Pacific Ocean and sulphur from Texas.

We wonder why this important industrial town should have been built here where there is not even a good natural harbour. Mr. Davis explains that it is because there is good coal in the hills just back from the seashore, which provides plenty of cheap fuel for these industries.

The end of our journey · Presently we see Sydney in the distance. We fly over its harbour and bridge—the beginning and end of our flight around Australia—once again we circle the airport, and our plane lands.

OTHER AUSTRALIAN TERRITORIES

In our trip around Australia we have seen much, but we have seen nothing of the territories which lie beyond Australia's coast. Mr. Davis gathers us together at his home to tell us about them.

Tropical islands · "Among the important places that we have missed are the tropical islands to the north," he tells us. "Do you remember our seeing an aeroplane at Cairns waiting to take off for Port Moresby in New Guinea? New Guinea is a tropical island close to the equator. Half of it belongs to Australia.

"The land of New Guinea is very rugged—some of it is as high as 13,000 feet. There are large rivers flowing through deep valleys. Gold is dredged from the beds of these rivers. Most of the machinery and supplies needed in the gold-dredging have been flown in by plane.

"The people of New Guinea are of very mixed origins, and some of them are still primitive, or uncivilized. There are tiny Pygmies and tall Negroes, Melanesians, and even some Polynesians.

"There are also other tropical islands which are governed by Australia. Can you find these on the map (page 188): New Britain, Norfolk Island, and Lord Howe Island?"

Macquarie Island · Mr. Davis then tells us about Macquarie Island, about 850 miles southeast of Tasmania. "As you can guess," he says, "it is a cold and stormy part of the world, as the island is right in the track of the gales that blow from the west. There is not much of interest there except the penguins and sea elephants. For many years no one lived there, but now it has a lonely weather station—one of the stormiest in the world."

Antarctic territory · Still farther south, we learn, there is the Australian Antarctic Territory, covering about a third of all the land in the south polar region. A weather station is being built there.

A REVIEW OF AUSTRALIA

MANUFACTURING INDUSTRIES

A variety of products · At present there are about 900,000 Australians working in factories. In the early days, Australia produced mainly raw materials—wool, wheat, meat, metal ores, and so on. There has been a change since that time. Today many factories are in operation, turning out a variety of products.

In some of the most important factories, farm machinery is made. Others use the products of the sheep stations, the cattle ranges, and the farms. Wool is woven into cloth, cream is made into butter and cheese, and fruits are dried or canned for export. Wheat is ground into flour, skins are made into leather, and cotton is spun to make thread.

Goods for use in the home and in everyday life—clothing, shoes, glassware, books, drugs, furniture—are manufactured, as well as iron and steel products, mining machinery, locomotives, ships, planes, cars, and trucks.

Industrial regions · The factories are not scattered one by one all over the country. Most of them are close together in a few centres where many people live. We call them *industrial regions*. There are good reasons why they are arranged in this way. Factories need cheap fuel, power, and light, a good water supply, railway tracks and freight yards, and docks for shipping. Because of this, most Australian factories are in the areas near Sydney and Melbourne.

The Sydney and Newcastle area is, as we know, the most important steel centre in Australia. The electricity needed by factories is supplied by a giant steam-power station, built at Botany Bay. West of Canberra there is also a large hydro plant, at the Burrinjuck Dam.

Brisbane and other coast cities in Queensland have many factories, some of which use local raw products, such as sugar.

The Melbourne area in Victoria has cheap electricity, from a power plant which uses lignite as fuel. Metals from other parts of the country are shipped to Melbourne to be used in making aeroplanes, truck bodies, automobiles, railway equipment, and machinery of many kinds. Here, too, is the main centre for making clothing and boots.

In Tasmania there is enough rain to supply water power for cheap electricity, and so we find such industries as paper-making, aluminum, and the refining of other metals. Jam-making and fruit-canning are also important industries there.

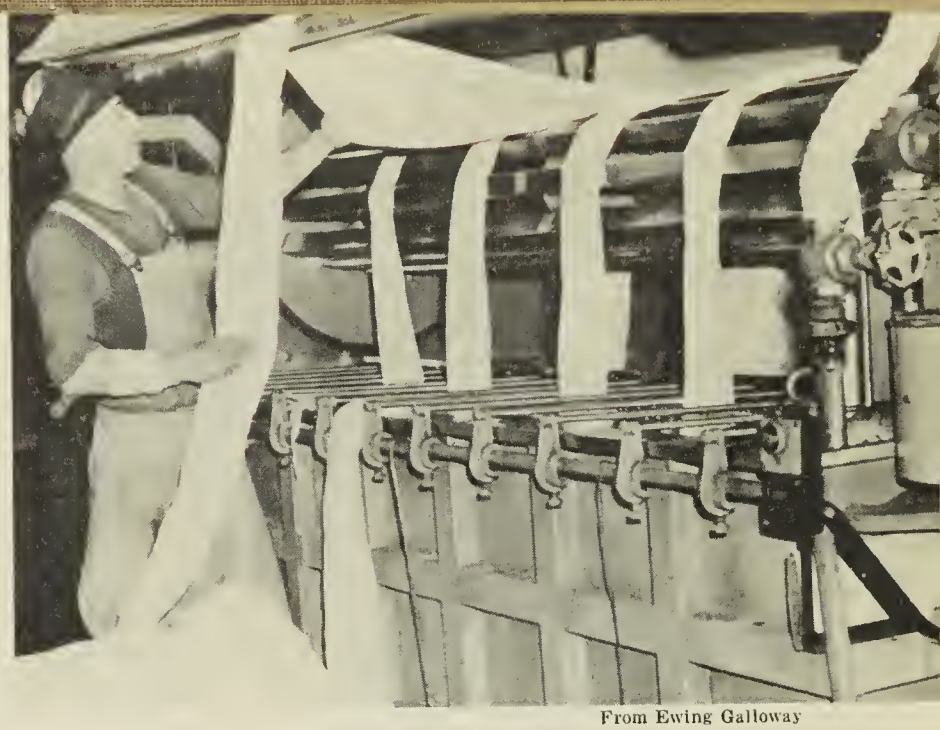
In South Australia the industries are mainly in the "Gulf lands"—around Spencer and St. Vincent's gulfs. We already know about iron smelting at Whyalla and other metals produced at Port Pirie. Adelaide has many industries which supply goods needed by the local people—sugar, flour, soap, cement, furniture, and so on. Uranium is being mined west of Whyalla.

Materials · For the most part, the raw materials found in Australia are used in Australian industries. Some others must, of course, be imported. Australia has no oil, and so that must come from abroad. Sulphur, softwood pulp, and many other materials must also be brought in.

SOMETHING TO THINK ABOUT · Why was the making of farm machinery one of Australia's first industries?

SOMETHING TO FIND OUT · Find out from reference books what is produced at the factories in Geelong, fifty miles from Melbourne.

A PROBLEM · Victoria and some other parts of Australia have large forests of hardwoods, which make fine lumber. Australians need much wood pulp for making newsprint and the new textiles, like rayon. Most of the pulp needed was formerly imported from British Columbia. Scientists tried to make pulp out of hardwoods, but it was for many years too difficult. Now it can be done, if about one-quarter of softwood pulp is mixed with it. Today Australia has a large pulp-making industry. Can you decide in what parts of the country it is located?



From Ewing Galloway

Dyeing woollen goods at a textile mill in Melbourne.

AGRICULTURE IN AUSTRALIA

In our trip around Australia, we have seen the cattle and sheep lands, the wheat farms, and some of the fruit-growing areas. A list of all the agricultural products of Australia would be a long one indeed.

Where the crops are grown · As we have learned, each type of farming depends on the soil and climate of the region. Some soils are richer than others, and there are different amounts of rainfall and sunshine in different parts of the country.

Each kind of farming is carried on where conditions suit it best. Grain is grown in the parts of New South Wales, Victoria, and South Australia where the land is fairly dry. Fruit-growing is carried on wherever there is enough water; in Australia there is usually enough sunshine everywhere. In the cooler parts of the continent to the south, fruits, such as apples, pears, plums, oranges,

AUSTRALIA

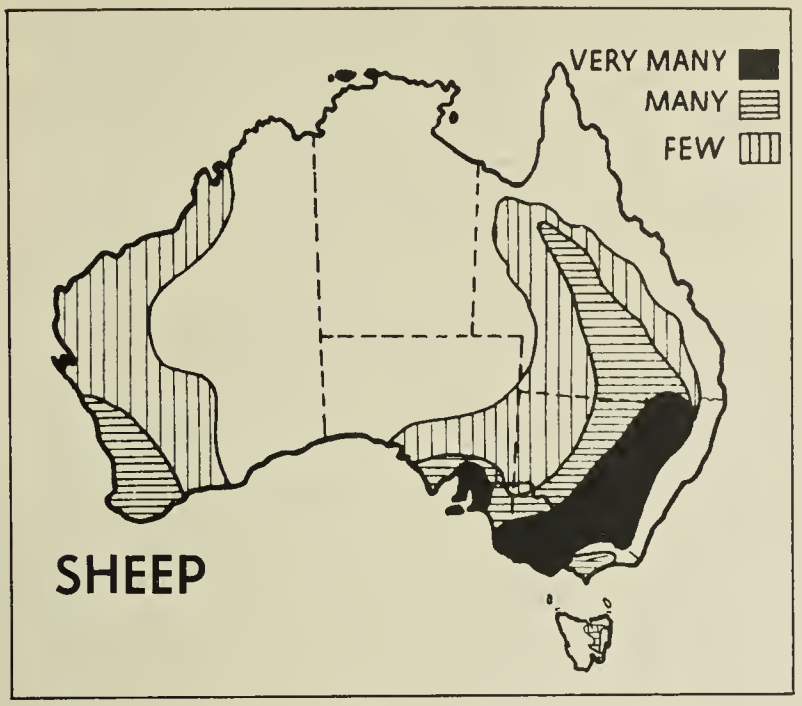
Statute miles

0 100 200 300 400 500 600

over 10,000′
3,000′-10,000′
1,000′-3,000′
0′-1,000′

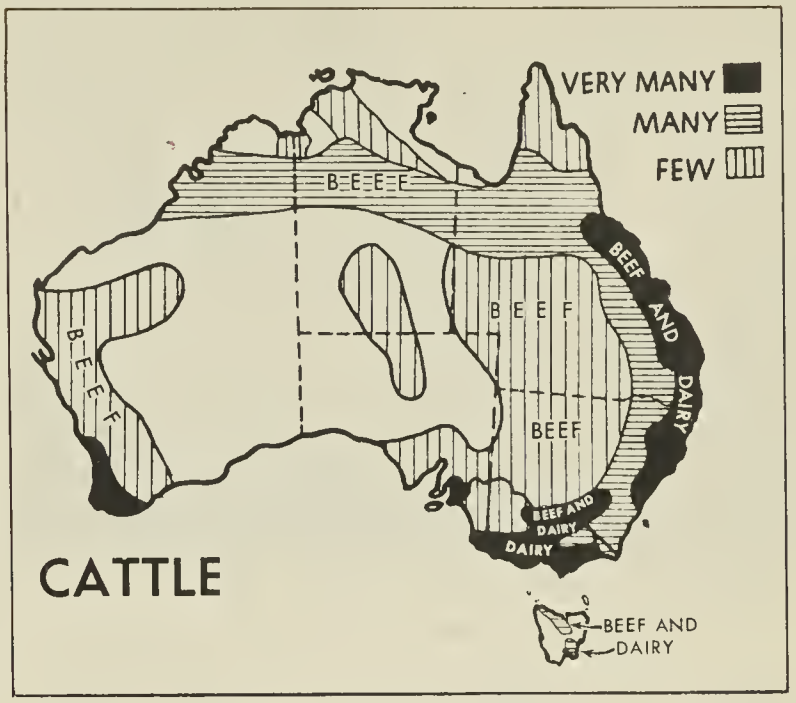
★ Capital of country
◉ State capitals

TIMOR SEA
Joseph Bonaparte Gulf
King Sound
MELVILLE I.
BATHURST I.
Darwin
ARNHEM RESERVE
GULF OF CARPENTARIA
GROOTE EYLANDT
CAPE YORK PENINSULA
C. YORK
NEW GUINEA
PAPUA TER. (AUS.)
CORAL SEA
Wyndham
Birdum
WELLESLEY IS.
GREAT BARRIER REEF
ATHERTON TABLELAND
Cairns
Broome
Derby
NORTHERN TERRITORY
BARKLY TABLELAND
Townsville
Cloncurry
Mt. Isa
EASTERN QUEENSLAND
Mackay
Rockhampton
TROPIC OF CAPRICORN
Bundaberg
GREAT SANDY I.
Moreton B.
Brisbane
MONTE BELLO IS.
NORTHWEST C.
Marble Bar
L. Mackay
MT. BRUCE 4,024′
DESERT
ARUNTA DESERT
MACDONNELL MTS.
Alice Sps.
L. Amadeus
MUSGRAVE RA.
WESTERN AUSTRALIA
REGION
SOUTH AUSTRALIA
L. Eyre
AUSTRALIAN ALPS
DARLING DOWNS
Shark B.
L. Barlee
Geraldton
DARLING RA.
Kalgoorlie
NULLARBOR PLAIN
L. Torrens
L. Gairdner
Port Augusta
Iron Knob
Whyalla
FLINDERS RANGES
Broken Hill
Darling R.
NEW SOUTH WALES
Perth
Fremantle
Bunbury
Geographe B.
C. LEEUWIN
Albany
GREAT AUSTRALIAN BIGHT
Spencer G.
St. Vincent G.
Murray R.
Lachlan R.
Murrumbidgee R.
BLUE PLATEAU
Adelaide
MT. LOFTY 2,334′
KANGAROO I.
Canberra
Newcastle
Sydney
Botany B.
Port Kembla
Jervis Bay
VICTORIA
Bendigo
Ballarat
Geelong
Melbourne
MT. KOSCIUSKO 7,305′
Port Phillip B.
WILSONS PROM.
Bass Strait
TASMAN SEA
KING I.
FLINDERS I.
Launceston
TASMANIA
Hobart
INDIAN OCEAN
PACIFIC OCEAN
10°
20°
30°
40°
110°
120°
130°
140°
150°
160°



Courtesy Australian News & Information Bureau

Where sheep are raised in Australia.



Courtesy Australian News & Information Bureau

Where cattle are raised in Australia.

and lemons, are grown. Tropical fruits are grown in northern New South Wales and are very important in Queensland.

Beef and dairy cattle · It is warm enough in all parts of Australia to keep animals out of doors all year round. Raising animals there is cheaper than in a country where barns must be built and fodder must be stored for the winter. The difficulty in Australia is not heat or cold but lack of water. In some parts of Australia there is enough rainfall to supply the stock; in other parts, water comes from artesian wells.

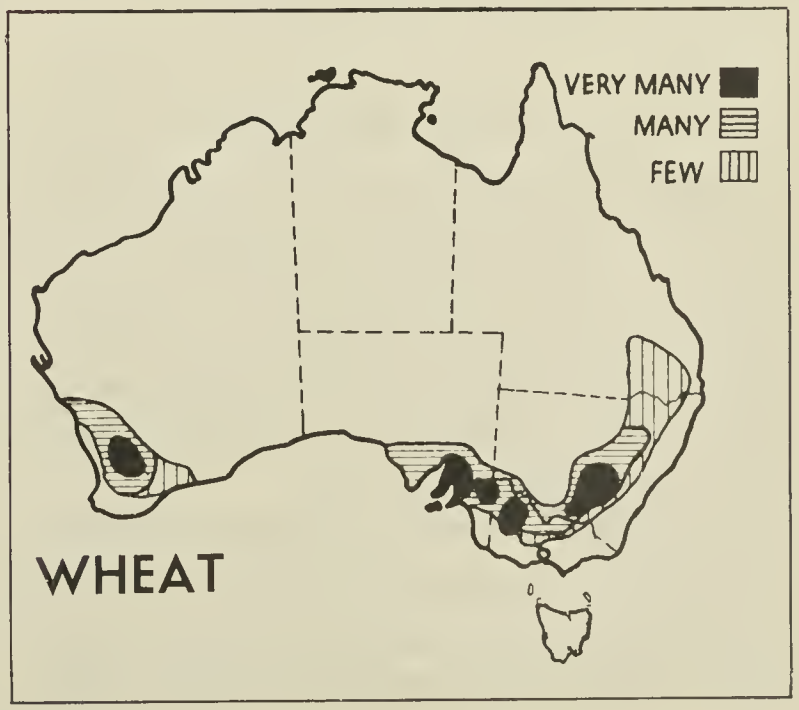
There are two kinds of cattle—beef cattle and dairy cattle—and there is an important difference between them. The first are raised for meat and the others for milk. Beef cattle are raised in the drier parts of the country, where there is plenty of room for them to wander looking for food. They are rounded up once a year and driven to the packing plants—at places like Brisbane, Townsville, Wyndham, and the large seaports in the south.

Dairy cattle are kept in the moister and cooler parts of the country, largely in the southeast. Most of those which produce milk for the homes are kept near the large cities, so that the milk can be delivered while it is still fresh. Milk from other dairy farms is used in making cheese or butter.

Sheep-raising · The map above shows where sheep are raised in Australia. Australia has about twice as many sheep as any other country in the world—the Soviet Union and the United States being the next biggest sheep-raising countries. Most Aus-

The wheat lands of Australia.

Courtesy Australian News & Information Bureau



tralian sheep are in the southeastern part of the country, away from the seacoast where the land has other uses. As a rule, sheep are not kept where there is less than ten inches of rain a year, or where it is too hot.

Sheep are raised for two different purposes—for high quality wool and for lamb and mutton. Australian wool is mainly from the merino breed of sheep and is of very high quality. Australia depends much on wool to get money to buy things from other countries. Even Australians who never see a sheep watch the price of wool at the auction sales. If it is high, they are all happy, for it means prosperity for their country.

TWO PROBLEMS · **1.** Which have a better chance to live on dry grassland, sheep or dairy cattle? Explain your answer.

2. The right-hand map on page 189 shows the areas where both beef cattle and dairy cattle are raised. The two main areas are on the east and southeast coasts, and also around Adelaide. Can you explain why there are no cattle at all in some places?

SOMETHING TO LOOK UP · How many sheep are there (*a*) in your province; and (*b*) in all of Canada?

A QUESTION TO ANSWER · Are cattle stations likely to be larger in moist or in dry parts of the country? Why do you think so?

MINING IN AUSTRALIA

Mining problems · Like Canada, Australia has great mineral wealth. But while we in Canada have to worry about the cold and snow in winter in our mining areas, the Australians are more troubled by dryness—so many of the minerals seem to be in places where there isn't much water.

Gold-mining · Gold is the most important of Australia's minerals. It was gold that brought many of the settlers to Victoria, New South Wales, and Western Australia. There is nothing like a gold "strike" to bring people into a new country quickly. If gold were found in the middle of the central desert, people would live there to mine it.

Gold is mined in many parts of Australia, but almost all of it comes from Western Australia. Can you name a gold-mining town there? Other gold mines are in New South Wales, near Sydney and Newcastle; in Queensland, near Brisbane; and in Victoria. Australians have been mining gold for over a hundred years, but the country still stands fifth in the world in production—those ahead of it are South Africa, the Soviet Union, Canada, and the United States.

Other minerals · In our flight around the country we saw something of the silver, lead, zinc, and copper mines at Mount Isa in Queensland. We also passed the iron mines at Iron Knob in South Australia, and the iron mine across the other side of the country at Yampi Sound, in Western Australia. And we must not forget the brown coal, or lignite, that is so important in Victoria, and the excellent coal near Newcastle—and the zinc in Tasmania.

Australia is fortunate in having many different minerals, including uranium. One mineral lacking, though, is petroleum. Most of the rocks there are too ancient for that. Almost all the oil needed in the country has to be imported, although some is made from the lignite in Victoria.

A QUESTION · On our flight we saw mines at Broken Hill and at Kalgoorlie. Do you remember what minerals come from each of them? What mineral is mined at Rum Jungle?

TRANSPORTATION

Railways · On our tour of Australia, we travelled by plane. That is the best and quickest way of getting about and seeing

such a huge country. When it comes to moving very large tonnages of freight, though, railways are necessary. Such goods as coal, ore, lumber, or cattle, and large crowds of people, too, can only be moved by train.

The railways in Australia have difficulties because of differences in gauge in various parts of the country. Each state originally built its own railway lines and had its own ideas about how wide to make the tracks. Three different widths are used, and a passenger has to change trains five times getting from north Queensland to Perth, in Western Australia. The tracks are all being changed to standard gauge, but it will take a long time to finish and will cost a great amount of money.

To understand the pattern the railways make on the map of Australia, we should know how the railways came to be built. At first, people travelled along the coast by ship, and many still do so today. All that was needed then were lines inland from the seaports to the grain lands, or cattle country, or mines, or sheep stations. Some of the lines, therefore, are like ours on the Canadian prairies—wheat lines—and some are like our mining lines. Later on, Australia started to join these odds and ends of railways. Some new railways were built, too, such as the transcontinental from Perth to Adelaide, and others into the central parts of the country. Some day there will probably be a line from Queensland to Darwin.

Roads and trails · As for roads, there are some very fine ones in the parts of Australia where there are many people. The Australians are great car drivers, and where there are many cars good roads are needed. But in the outback there are many miles of dry and rather dusty trails. The Australians use motorcycles a lot more than we do. They are fine in places where the roads are narrow, and out on the cattle ranges and sheep stations.



Australian Trade Commissioner, Toronto

Packing Australian apples for export.

SOME QUESTIONS TO ANSWER · **1.** In which parts of Australia might you expect to see camels being used as a means of transportation?

2. How is the iron ore used in the Newcastle steel works transported from the mines?

3. Why are so many aeroplanes used in the Australian outback and the Canadian north?

SOMETHING TO FIND OUT · Try to discover whether travellers going from one province to another in Canada need to change trains because the railway gauge is different in different provinces. Does any province not have standard-gauge railway tracks?

TRADE AND COMMERCE

Many Australians work in commerce, helping to carry on the trade of the country. In every civilized land, men and women are busy buying and selling goods, handling money in banks, insuring property or people's lives, and importing and exporting goods. In Australia, almost as many people make a living in this way as on the farms and stations.

Overseas trade · Overseas trade is a much more difficult matter to understand today than it was years ago. In the old days, trade between countries was simple. Goods moved

easily from one nation to another, depending on what each one needed. That is no longer so. Most countries charge a duty on goods coming in from abroad, and even stop some goods altogether. Australia places duties on many foreign goods. One example is sugar. A tax is put on imported sugar to try to stop foreign sugar from coming into the country, so that Australians will buy the sugar produced in Queensland.

Another problem of overseas trade is money. A nation must have the right kind of money if it wishes to buy goods abroad. An Australian wanting to buy paper or pulp in Canada must have Canadian dollars to pay for it, if he wishes to buy automobiles in England, he must have English money. His own money will not do.

About half of Australia's trade is with the British Isles. Canada is fifth in a long list of trading countries. As you know, trade between countries is an exchange of goods. Each tries to get what it needs, and to sell what it has to spare. You remember that Canada buys coffee from Brazil and sells wood pulp to Brazil in return.

Australia's exports · What has Australia to spare from its own needs? We know the list well by now. First of all, there is wool, which is by far the most important of the goods for sale. What people need wool? Mainly those living in the cool countries of the northern hemisphere, who have factories where they can make the wool into cloth. Most of the wool from Australia, therefore, goes to Europe, including the British Isles, and to North America and Japan. Other goods Australia has to send overseas are wheat and flour, butter, meat, fruit, hides, and metals. Small amounts of them go to many parts of the world, but the best customers are in Europe and North America.

Australia's imports · In return, Australians buy the goods they cannot grow or make at home. They are great tea drinkers, and buy large quantities of tea from India. Oil is another need and must be bought abroad. Among the important imports is cloth, for making into clothing. Another is machinery. Canada sends paper and wood pulp, asbestos, automobiles, tobacco, and other goods.

The need for trade · We can now understand why the trade of Australia is not mainly with nearby countries of Asia, but with industrial lands on the other side of the world. So long as people in those lands buy Australian wool and other products, the people of Australia will have money to buy goods from them. If these customers stop buying, the people of Australia will be poorer and there may be unemployment on the farms and stations and in offices and factories.

AUSTRALIA'S PROBLEMS

An empty land · Australia is one of the largest countries in the world. It is three-quarters the size of Canada. Yet its population is less than that of a large city—London, in England. Most of the people live in a few cities. Australia's biggest problem, therefore, is how to get more people.

Australia's location · If we look at the map on page 193, or better still, if we look at a big globe, we see that Australia is very much on its own. It is near the middle of the hemisphere that is mainly water. It is far away from the land hemisphere, which has most of the world's people in it.

Difficulties in settling · Now we can understand why Australia was the last of the continents to be settled by Europeans. It is near the centre of a vast ocean, and far from the routes which sailing ships travelled in the old days. It was only by mistake that the Dutch discovered it. They landed on the western and southern shores, which are hot and dry, and no one wanted to go and live there. Later on, Captain Cook found the



A map showing Australia's location, far from the land areas of the world, in the centre of the hemisphere which is mostly water.

other coast—the east coast, which was and still is a beautiful land. But although some of Australia is like what Captain Cook saw, far more of it is like that seen by the Dutch.

Australia is in the driest part of the world. Some winds carry moisture, but Australia does not get many of those winds. If it were nearer the equator, it would get plenty of tropical rain; if it were nearer the south pole, it would also have plenty of rain. Where it is, it does not get enough. It is Australia's distant position, and the dryness of its climate, that have so far kept many Europeans from settling there.

A lonely land · Australia looks lonely on a world map because it is so far away from other lands. It is lonely for another reason. Australians are a people who originally came from Europe, but they are 12,000 miles away from their old home. Most of the people who are nearest to them are Asiatic—Papuans and islanders of the South Seas, Malays, Javanese, Chinese, Japanese, and Indians. Even the nearest large group of European people, those in South Africa, are outnumbered by coloured natives. Australians have very little in common with the hundreds of millions of non-Europeans who live north of them. They do not visit one another and there is no great trade between them. The Australians prefer not to have Asiatics as settlers.

More settlers wanted · Australia is trying to fill up its empty lands with European settlers. After the Second World War, about 150,000 newcomers a year were invited to make their homes in Australia. It is hoped many more will come. Australia wants to build up a population of about 20,000,000 people. It is planned to have most of these people settle on the land, because the cities are already large enough. The Australians don't expect new settlers to go and live in the deserts, but they believe that with modern houses and modern transport, and all the aids of science and medicine, people can have a good life on some of the lands where few people live today. But about the great dry heart of the country, they can do nothing.

SOME QUESTIONS TO ANSWER · **1.** Why do Australians not have much to do with the people of Asiatic countries?

2. Are the countries which buy Australian products close by or far away?

XI · New Zealand



Trade Commissioner of New Zealand

The snow-covered peak of Mount Egmont, North Island.

VOYAGE TO NEW ZEALAND

LEARNING ABOUT NEW ZEALAND

New Zealand, which, like Australia and Canada, is a member of the British Commonwealth, is the next country we are to visit. We go there from Sydney, Australia, by a steamer which takes about four days to cover the 1,200 miles. During the voyage there is time to read our guidebooks.

Warm currents and warm air · The first fact we discover is one about the broad sea we are crossing. A map (page 145) shows that warm water moves from the coast of New South Wales toward New Zealand. This water is a part of the South Equatorial Current which has drifted toward Australia from the east. The map also shows that a cool current of water, pushed along by the prevailing westerly winds, flows toward New Zealand from the west. Most of this cool water flows south of New Zealand, however, and the islands are surrounded by warm water. Above the warm water is warm air, which gives New Zealand a mild climate.

Tasman and Cook · The map calls the sea which we are crossing the Tasman Sea. The name reminds us of Tasmania and the Dutch explorer who travelled these waters 300 years ago. We read: "Although Abel Tasman saw New Zealand in 1642, he did not land there. Exploration of the islands was begun by Captain James Cook in 1770, when he sailed his ship around both islands and made careful maps of the coasts.

"The only people living there at the time were *Maoris*, whose ancestors had arrived in canoes from Tahiti in the Society Islands." We remember hearing about this journey

when we crossed the Pacific from Canada to Australia.

SOME MAP WORK · Before we read further, we should study some maps, to be certain we understand what we have learned.

1. On the map of the Pacific Ocean on pages 142–143, find Tahiti. Trace the route the first Maoris must have taken to reach New Zealand. How many miles did they travel?

2. Find, from the map on page 201, the latitude of (*a*) the northernmost tip of North Island and (*b*) the southernmost tip of South Island. How many degrees does New Zealand cover from north to south? As each degree of latitude represents about seventy miles, we can estimate the length in miles. Do you find it to be about a thousand miles from north to south?

3. On the map of North America on page 2, find two places on the west coast in latitude 34° N. and 48° N. The land between them is at the same distance from the equator as is New Zealand.

NEW ZEALAND—THE LAND

A group of islands · Let us now continue to discover what we can about New Zealand. We wonder whether it is at all like the Pacific coast of North America, or possibly some parts of South America, or even like Australia, which we have just left behind us.

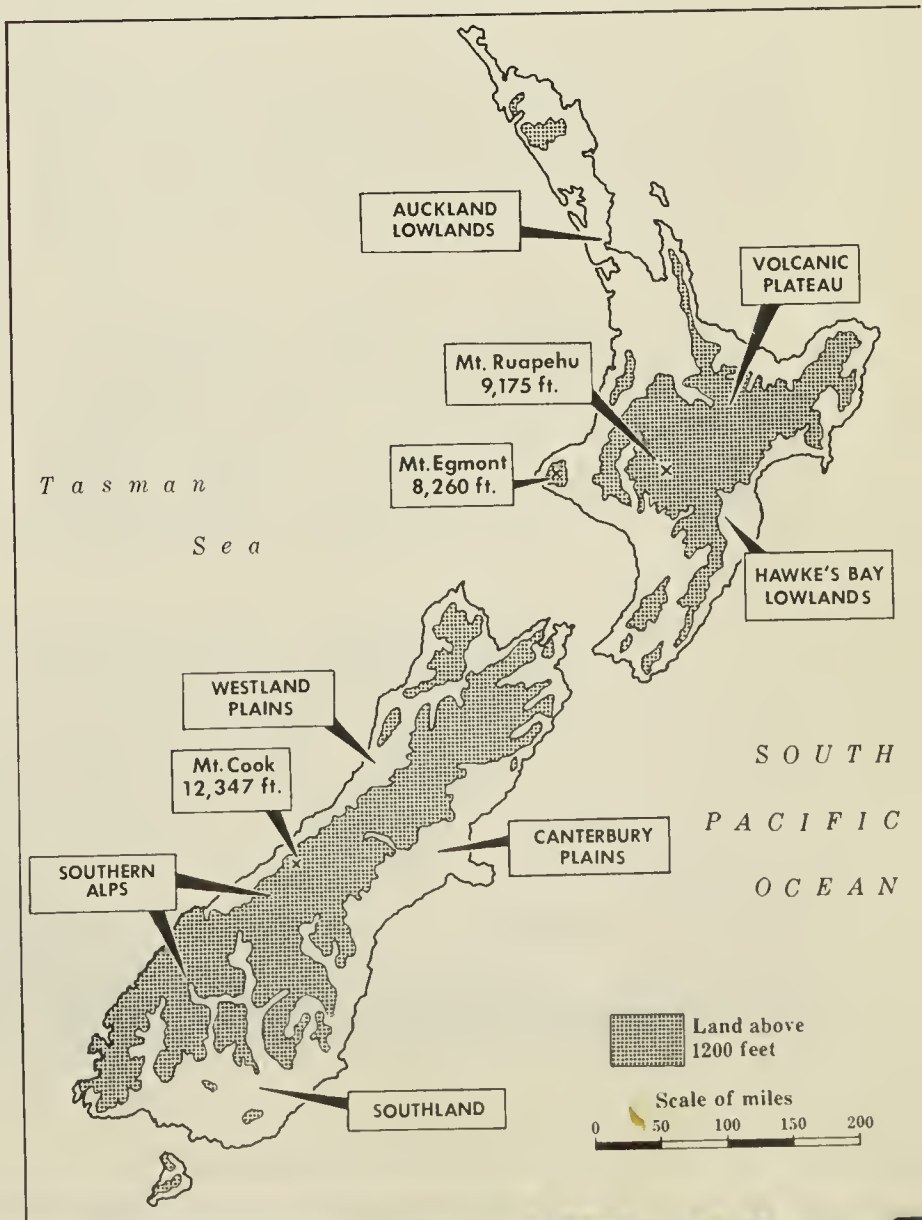
The map on page 201 shows New Zealand as two main islands, North Island and South Island, separated by Cook Strait. At the southern end is a much smaller island, Stewart Island. There are other still smaller islands much farther away.

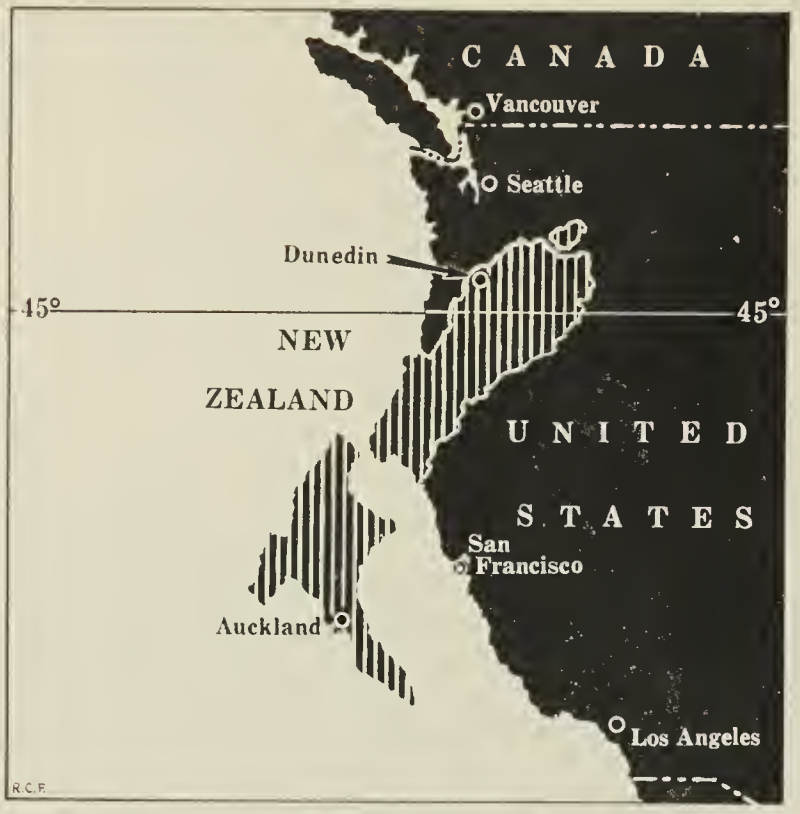
Rugged lands · Reading from our book again, we find that when Captain Cook first saw New Zealand from his small ship, he wrote in his diary, "It is rude [meaning rough], craggy, and desolate. For as far inland as the eye can reach, nothing appears but the summit of rocks." He found later that there were some areas of lowland plains, as well as many valleys among the mountains, but he was correct in describing New Zealand as chiefly a mountainous country. Less than a quarter of it is below 650 feet, and much of this lower land is rugged too.

High peaks and glaciers · The Southern Alps form an almost unbroken line of rugged mountains along the entire length of South Island, near the west coast. There are many peaks higher than 10,000 feet, and the highest, Mount Cook, is 12,349 feet high. Try to find out whether this is as high as Mount Robson in the Canadian Rockies. Snow remains on some of the ranges throughout the year, and glaciers form in the high valleys and move down through forest-covered slopes to within a few hundred feet of sea level. We decide that mountain ranges, forests, and glaciers make New Zealand sound like parts of western Canada.

Volcanic craters · In North Island the mountain ranges are nearer the east coast and are

A relief map of New Zealand.





A map of New Zealand placed on a map of North America, at the same distance north of the equator. Why are the New Zealand islands turned upside down?

not so high or so continuous as in South Island. Many of the peaks in North Island are volcanoes and some of them are still active. The centre of the island is a volcanic plateau. There are no active volcanoes on South Island, but Lyttelton Harbour is formed from the blown-out crater of an old volcano.

There has been no large eruption of a volcano in North Island since 1886, when great damage was done. Earthquakes sometimes occur in this region. In 1931 the city of Napier was badly damaged by earthquake shocks.

Hot springs and spouting *geysers* are found in North Island. Geysers are fountains of hot water and steam. The Maoris have long used the warm waters from the hot springs for cooking food, washing clothes, and for treating sick people.

Lowlands and people · As we are reading, the ship's doctor strolls by. "What are you reading?" he asks. "Oh, about New Zealand mountains, I see. They are marvellous. I climb among them when on vacation.

"Of course, New Zealanders live mainly on the level parts of our islands," he goes on. "It is difficult, as you know, for large numbers of people to make a living among high mountains. There is not enough level land there to farm, and it is often very wet. That is why most of the people live in the lowlands. They enjoy visiting the highlands, though, just as I do."

New Zealand and Australia · The doctor asks where we have come from, and when we tell him about our journeys in Australia and South America, he smiles and says, "You are very lucky to have seen so much of the world.

"When you travel in New Zealand, you will find it is very different from Australia. Of course, their cities are much alike, but otherwise the two countries are very different. Water supply is one example. Australians live in a dry land. Irrigation dams have to be built, and deep wells drilled. Parts of the country are so dry they are useless desert.

"We in New Zealand live in a damp land. Even the driest areas have about as much rain as does Canberra in Australia. Plants grow very quickly here in New Zealand—it's a green garden of a country. We have the sea all around us, and so our climate is mild—not hot in summer nor cold in winter. Your book probably tells about the New Zealand climate."

THE CLIMATE OF NEW ZEALAND

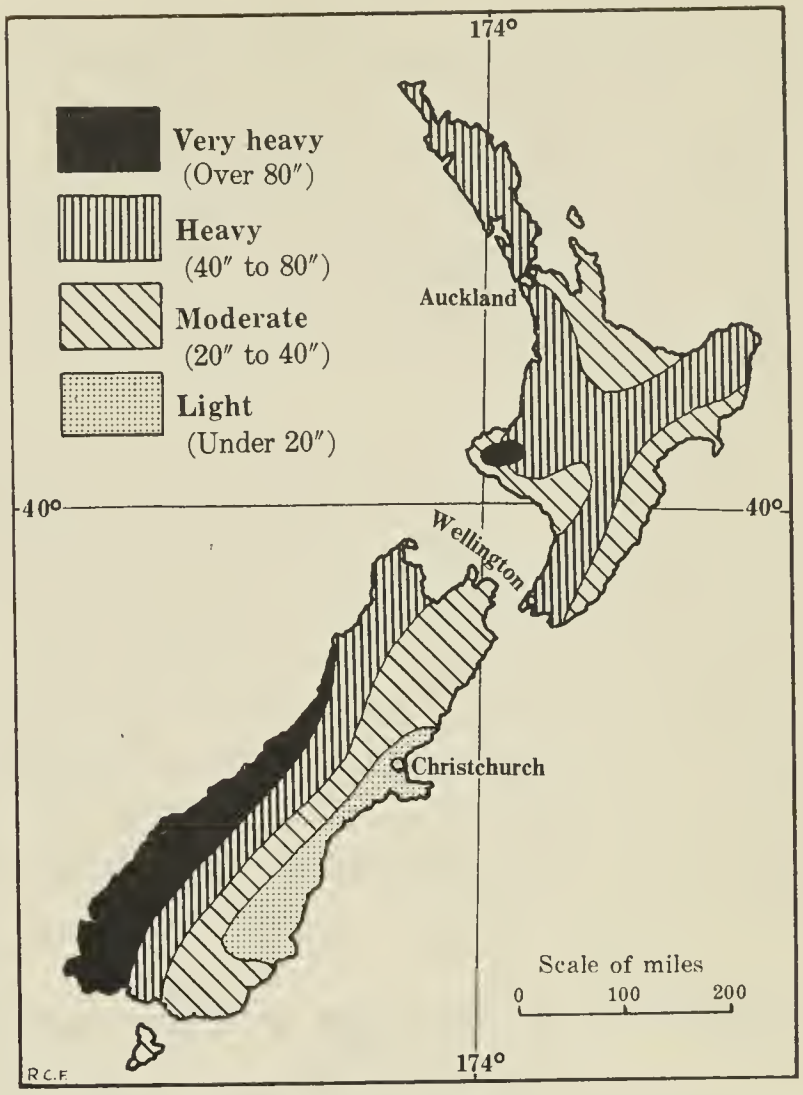
There are two main influences on the New Zealand climate, the book tells us—the location of the islands in a latitude where winds blow from the west, and the height of the land above sea level. The high mountains are cold at all seasons of the year, but the lowlands are never very cold, even in winter, although there are often frosts.

The average temperature for the whole year at Auckland is about 59°. Dunedin, in southern New Zealand, is cooler. It has a temperature average for the year of 50.5°, which is close to that of Victoria, British Columbia.

Most of New Zealand is a sunny land, especially in the north. The number of hours of sunshine each day averages better than in Spain or Italy, both of which are famous for being very sunny.

Rain throughout the year · There is plenty of rain as well. New Zealand is in the path of the moist westerly winds which blow steadily in the South Pacific region. The west coast of South Island is very wet. This is because the westerly winds are forced to rise rapidly as they pass over the Southern Alps. Most of their moisture falls as rain near the coast or as snow on the mountains, just as happens in British Columbia and in southern Chile.

When the winds descend to the eastern side of the island, they are dry and warm. This explains why the Canterbury Plains are covered with grass and not trees, for grass can grow where there is not enough rain for trees. The mildness of the winter, together with the rainfall, make New Zealand the richest grazing area of its size in the world.



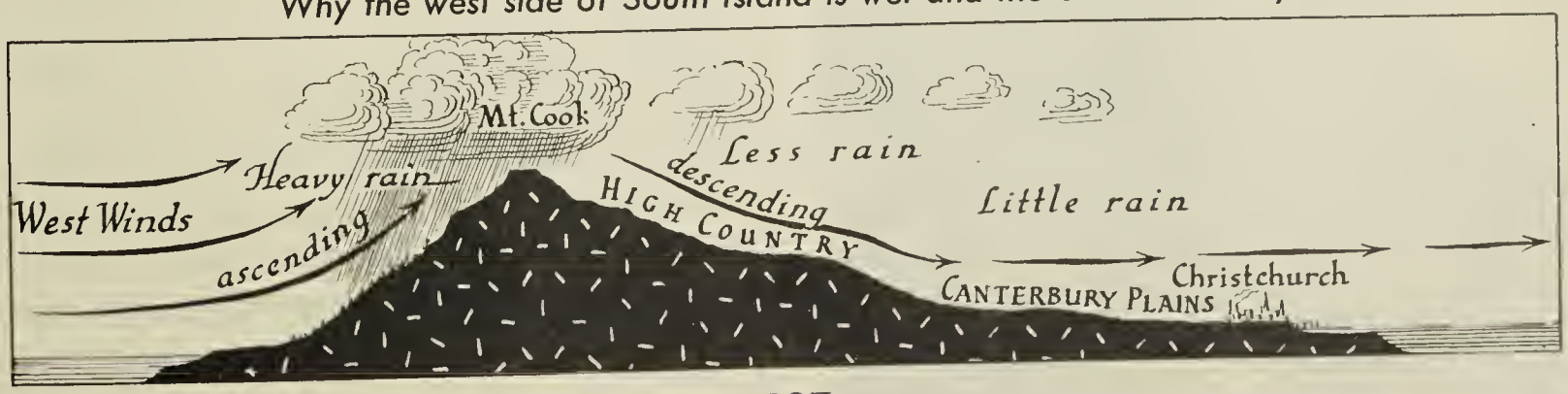
Average yearly rainfall in New Zealand.

PLANTS AND ANIMALS

In our pile of books is one with many photographs and drawings of trees, flowers, ferns, and other plants. There are so many new and strange plants that we decide to read the book more carefully. This is what we learn.

Forests and grasslands · When one of the scientists on Captain Cook's ship returned to England, he said that all kinds of European grains, plants, and fruits would flourish in New Zealand. He had found the lower slopes of the mountains and the foothills

Why the west side of South Island is wet and the east side is dry.



covered with forests. None of the trees there were of American or European varieties, however. Almost all of them were evergreens, including the valuable kauri pine, which was soon being cut down for masts of sailing ships. Among the strange plants were giant tree-ferns. Three-quarters of the flowers seen in New Zealand were found nowhere else in the world.

The lowlands were covered with grasses, but these were coarse and wiry and not suitable for grazing animals. This did not matter to the Maoris, for they kept no animals except dogs. There were no cereal plants, such as wheat or oats, from which flour could be made. All the plants and animals raised by New Zealand farmers and cattlemen today have been introduced from some other part of the world.

A giant kauri pine. The people at its base seem very small beside it.

Trade Commissioner of New Zealand



Cutting the forests · Before European settlers arrived, more than half of New Zealand was covered with forests. New Zealanders are now worried because so many of the best forests have been destroyed. Lumber is needed for houses and other buildings, and much wood must be used for boxes in which to pack butter, fruit, and other products for shipment overseas. The government tries to see that some trees are looked after for the future, and that many more are planted. This forest conservation is very important in all countries today.

New animals · Before Europeans reached New Zealand there were no farm animals. Captain Cook's expedition left some pigs and poultry on the islands, and in their new home these soon increased to large numbers. Goats, deer, rabbits, and other animals brought from Europe have become pests. To control the rabbits, weasels and ferrets were imported, and they too have become a nuisance. Our guidebook states that other animals, too, have been brought in, including the British hedgehog and the furry, long-tailed opossum from Australia.

Even bees had to be imported. When clover was planted by early settlers to supply fodder for their cattle, it was found that the crop would not grow because there were no bees to help change the flowers into seeds. So bees, too, were shipped out from England.

New birds · Native birds have been driven back into the remoter areas by new birds brought in from other lands—such as the English thrush and starling, and the sparrow. Among the native birds is the *kiwi*, which now hides in the deeper forests. It is used on the New Zealand emblem. Penguins also nest in New Zealand, and there are even some Canada geese. There is a native owl, with a call sounding like "more pork," and great green-and-brown parrots, and the musical bell-bird.

MAKING NOTES · Before we forget the new plants, animals, and birds we have learned about, we must make a list of them all, from pages 197–199. Some day we may be able to find pictures to show our friends.

NEW ZEALANDERS

The night before we are to dock, we write letters, to be posted as soon as our ship reaches port. Bill reads his aloud:

R. M. S. Waitangi,
Tasman Sea.

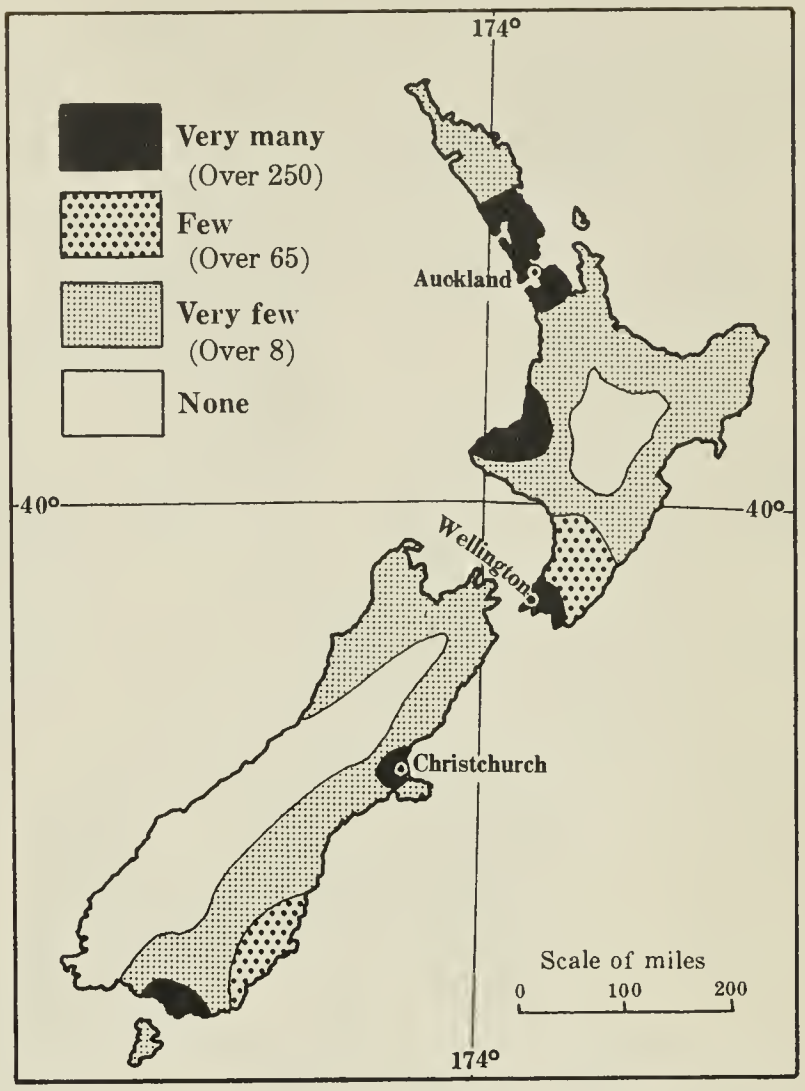
Dear Dad,

After dinner this evening we were talking to the ship's doctor about his country. He is a New Zealander. We shall see New Zealand in the morning.

There was one question I wanted to ask. It was about the Maoris. Do you remember telling me that when there were New Zealand airmen training in Canada, you used to watch them playing Rugby football, and that the best player was a Maori? I told the doctor about those games you saw in Winnipeg, and asked him to tell us about the Maoris in New Zealand. He said he'd be glad to, but he had a friend on the ship who knew far more than he did about them. He brought along the third officer, who is a Maori and who spent several years in the New Zealand Navy. I thought you'd like to hear what he told us about his people.

He said he had a cousin who trained as a pilot in Canada, and liked it very much except that he once froze his ears while waiting for a streetcar on Portage Avenue in Winnipeg.

It seems that there are about 117,000 Maoris in New Zealand. That is one for every sixteen other people. Most of them live on small farms or work on sheep or cattle stations, or on other country jobs. Some of them are businessmen, doctors, teachers, and



Where the people live in New Zealand.

lawyers—and quite a number have gone to sea, like the third officer. He said they wear ordinary clothes except on special occasions. In this way they are like our Indians, who dress up for the Calgary Stampede.

The Maoris are much like Hawaiians, and the officer said that he had felt quite at home in Honolulu and that after a short time he could understand the Hawaiian language. He said that the old name for New Zealand was *Aotearoa*, which means in English "the long white cloud." You see, the first Maoris came by boat from Tahiti and long before they could see the new land, they saw high in the sky the long white cloud that was over it. You won't understand, but the cloud was there because the westerlies rise over the high mountains and cause rain. All this was a long time ago—perhaps 800 years.



Trade Commissioner of New Zealand

Maori women, dressed in native costume, cooking in a hot spring on the Volcanic Plateau.

There is no colour problem between Maoris and other New Zealanders. They get along well, and even marry one another.

The Maoris are clever with their hands—they make beautiful wood carvings, draw remarkable designs, and weave fine cloth. You should see the paintings and weaving that the third officer has in his cabin. They are wonderful. He says we can get some in the northern part of North Island, where most of the Maoris live.

With love from
Bill

Settlers in New Zealand · Before landing in New Zealand, we look in a guidebook to learn what we can about the people who came after the Maoris.

Real settlement by the *Pakeha*, or white men, started about 1840, when the first governor signed the Treaty of Waitangi with the Maoris. (Waitangi is north of Auckland.) Then the white settlers began to flood in, just as many Europeans crossed the Atlantic to settle in Canada. The grandparents and great-grandparents of most New Zealanders arrived from England, Scotland, Ireland, or Wales. Some came from Denmark, Norway, and Sweden, and a few from Germany and France, but, generally speaking, nearly all New Zealanders are of British origin. These settlers were farmers and gold-miners, labourers and craftsmen, storekeepers and sailors, and their wives, sons, and daughters.

TOUR OF NEW ZEALAND

PLANNING OUR TRIP

Before we dock at Auckland, we ask the ship's doctor to help us plan a tour of New Zealand.

"You should see the larger cities," he says. "They are not as important as cities are in Australia, and none of them are really large, but you should not miss them. There are four of them, usually spoken of as 'the four main centres'—Auckland, Wellington, Christchurch, and Dunedin. You must also see something of the countryside.

"This map (page 205) will be a guide. I'll mark a route on it for you. This will give you a good view of New Zealand. What you don't see on the way you will probably hear about from other travellers. Good luck on your journey."

We bid the doctor good-bye and tell him we hope to see him in Canada some day.

NORTH ISLAND

Auckland · As our ship pulls into the harbour of Auckland, we see ocean liners from both North and South America, as well as some from Australia, Asia, and Europe. This harbour is also the main calling place for ships to and from the South Pacific islands.

Once the business of landing and of checking into our hotel is over, we set out



eagerly to explore. Auckland is a modern city, with fine buildings, and is famous for its parks and the surrounding wooded hills. It has a wonderful location, with the sea close by, and with plenty of level land for new buildings.

Like other cities, Auckland has many industries, making goods for export and articles for use by the local population. As do most New Zealand factories, they use materials produced in the country itself—they make butter and cheese, prepare meat for sale, grind flour, or pack and can fruit. Such goods are mainly for shipping abroad. Other factories make machinery, assemble automobiles, build radios, and make the hundreds of large and small things needed in every home.

Auckland is a large and growing city, partly because of its fine harbour, and partly because there is good agricultural land nearby. The climate is very mild—even in winter the temperature hardly ever reaches freezing point. Animals can graze out of doors all year round.

Northland tour · While at Auckland, we have time for a motor tour into "the winterless northland," parts of which are still very wild. We follow the west coast and watch waves of the Tasman Sea breaking on the rocks, then drive at low tide on part of the famous motor speedway, a long stretch of yellow sand. Crossing to the east shore, we find a small village founded years ago by Scottish settlers who once lived in Nova Scotia, and call at Waitangi, which we remember as the place where the treaty with the Maoris was signed more than a hundred years ago.



New Zealand Embassy, Washington, D. C.

A view of Auckland.



Trade Commissioner of New Zealand

Cape Reinga, at the extreme north of North Island.

Still farther north we see some of the last giant kauri trees. They cannot now be cut for lumber, as they are in national parks. Near the northernmost tip of the country, we are told that every fall thousands of birds, known as *godwits*, leave from there on the long flight to Siberia in the Soviet Union, where they spend the northern summer. Part of the New Zealand northland is good dairy-cattle country, and we see the fine herds grazing in large fields or clipping the salty grasses along the sand beaches.

To the Volcanic Plateau · From Auckland, we ride southward on the Main Trunk Railway through the centre of North Island to Wellington. It takes us to one of the main playgrounds of New Zealand, the Volcanic Plateau. This is now a national park, where active volcanoes, hot springs, and winter sports grounds attract New Zealanders and overseas visitors. There are no rich farmlands, no valuable mines, and only small areas of timber, and so the population is not large.

Our train takes us over a branch line to Rotorua, in the heart of the national park. Much of the country about here is covered by rock and ashes from old volcanic eruptions. Far to the south are really high volcanic peaks. One of them, Mount Ruapehu, rises more than 9,000 feet above sea level. There are large and small lakes, pine forests, and wide areas of scrubby bushes. At Rotorua itself are warm and hot springs where we can bathe, small mud pools which bubble with steam, and geysers which every now and then spurt up hot water. The water in these is heated by the hot rocks deep in the earth.

In this area most of the local people are Maoris. Some of them act as guides to tourists, while others farm the volcanic soil.

At Rotorua we board a tourist bus which will carry us across the plateau, to rejoin the Main Trunk Railway again at Taumarunui, on the Wanganui River.

In the bus we talk to a schoolmaster who lives on the seacoast at a town with the same name as the river, Wanganui. He points out the views as we drive along. He also explains that farming is going ahead more rapidly now in the volcanic areas. At one time many of the cattle there suffered from "bush-sickness." It was found that the soil needed special chemicals to keep the animals healthy. Among them, he says, is

cobalt, much of which is mined in Canada. Now there are beef and dairy cattle in an area that was once neglected.

By railway to Wellington · The train trip to Wellington is a long run across hilly and even mountainous country. It takes about eight and a half hours on the famous *Limited* express. Most of the trip is through very rich dairy country. Off to the west, near Mount Egmont, is a good farming region called Taranaki.

Still going southward, we follow along the seacoast, with Cook Strait on our right. We have seen nothing of the eastern coast of the island, but we are told that the Hawkes Bay area is also good farmland.

Wellington · Wellington is the capital of New Zealand. The day after we arrive our guide, who works as an engineer for the government, shows us around the city. He suggests that we see it first from the air.

From the plane we see that Wellington has a wonderful harbour, with many inlets separated by rocky headlands. Some of the hills around the city are forest-covered, but many of them have been cleared of trees and look very bare. Our guide explains that Wellington is crowded in by the hills. There is not enough room to make the downtown part of the city larger, unless it climbs uphill. Some of the main business blocks have been built on land made by filling in part of the sea. The suburbs stretch out along valleys and over hillsides.

On land once more, we are taken to see the Houses of Parliament, and we go down to the docks where vessels are loading wool, butter, lard, fruit, and chilled meat. Most of this goes to England. Before wishing our guide good-bye we ask him what his position is in the government.

Railways and power projects · "I'm an engineer in the Public Works Department," he says. "Our department built the 3,500



Trade Commissioner of New Zealand

Schoolboys on North Island learn about the care and raising of sheep.

miles of railways in New Zealand. The tracks are 3′ 6″ apart—a narrower gauge than in Canada. We had to build long tunnels, erect many high bridges, and make big cuttings. You see, this is a very rugged country.

"We also build dams in various parts of the country. Not long ago we dammed the Waikato River up on the Volcanic Plateau. That gives us a million horsepower of electricity. This country is well placed to produce electric power.

Buildings · Our guide goes on to tell us of other building carried on by the government. "We build offices and factories," he

A view of Wellington, showing the harbour, and the hills surrounding the city.

New Zealand Embassy, Washington, D. C.



says, "and also houses for ordinary folk. Our population is growing fast, and there is always a need for new homes. One thing we have to guard against in all our buildings, of course, is damage by earthquakes. There have been earthquakes here, and there may be more, and so we are careful to make buildings that will not collapse and injure people."

Conservation · He then tells us what his department is doing in conservation. "I think our most important work is to save the land for the people who come after us," he says. "We try to protect it from floods. Not only do we save the land we have, but we make new farmland from what used to be worthless areas. We fertilize large sections from the air, and if the season is dry, we irrigate the poor grasslands. If you visit Otago in South Island, you may see some of the fine green fields we have produced in this way."

Leaving North Island · As our guide finishes talking, we board the steamer for Christchurch on South Island. Our ship steams out through the heads of Wellington harbour, and we think of Sydney, Vancouver, Rio, and other good natural harbours we have seen on our travels. A good harbour certainly helps to make a city grow, we think.

SOUTH ISLAND

Christchurch · Christchurch is sometimes called the "City of the Plains," because of the level land not far from it, called the Canterbury Plains. The city is important to the people who live on these plains, and to those who live on the hilly downs or mountain foothills and those in the "High Country," or mountain ranges, as well.

Christchurch is not a seaport, but the sea is not far away, at the port of Lyttelton, where our steamer docks. Rather than spend our time in the city—although it is a very pleasant one—we shall go into the countryside, to see where the products come from that enter city warehouses and are loaded on ships for export. Our first journey will be westward across the mountain ranges.

A trip to Westland · At first the main railway line runs straight across land as flat as the Red River Valley of Manitoba or the Pampa of Argentina. Highways cross the plain in straight lines, and there are few rivers. The fields are large, and are separated one from the other by hedges of blackberry.

In time we are in the "High Country" itself. This is the rugged land that branches off from the main north-south mountain range like bones from a fish backbone. The highest peaks are more than 8,000 feet high, and among them are areas of bare rock and many icefields and glaciers, deep gorges, and rushing streams. In winter there may be deep snows, blocking the valley roads and even stopping the trains. In the level land between the mountains there is fine country for sheep and cattle.

There is only one good pass through these rugged ranges, and for many years all trains stopped on each side of it. Passengers were carried over the top in horse-drawn coaches. Now there is a tunnel five miles long beneath the pass, called the Otira Tunnel. It is the longest tunnel in the Commonwealth. After passing through it, the train runs beside deep canyons, over high bridges, and so down to the sea.

The Coast · The Westland region, often called just "The Coast," is *isolated*, or cut off, from the rest of the country. There people must live between the high mountains and the sea. It is a country of dense forests and other green vegetation. Everywhere there is plenty of rain—usually about 70 inches in a year, but some places receive as much as 200 inches. It falls often, at least half the

days in the year. The weather is never very cold and never very hot.

The Coast is not all the same, we are told. To the south are the Southern Alps, which are near to the sea. They have jagged crests up to 10,000 feet high, with glaciers and many small lakes. Farther south still is a fiord coast like that of northern British Columbia. At the northern end of the Coast are other high mountains. Between the northern and southern mountains there is a flatter land, where farming is important.

Coal-mining in Westland · The most important coal-mining area is near the town of Greymouth, where there are about thirty mines. The coal is very good, and is used by the railways and in industries. Farther north, high in the mountains on a chilly, rainy plateau, there are other coal mines. There the coal is not deep underground as at Greymouth, but is near the surface. Rock drills and explosives strip off the *overburden*, or layer of earth and stones which covers the coal, and then electric shovels dig it out and load it into large dump trucks. These carry it to an "aerial ropeway," on which it is taken down from the mountains in large buckets running on a cable, and in this way reaches the railway at sea level.

SOME THINGS TO FIND OUT · **1.** If New Zealand had no coal mines, where would imported coal have to come from?

2. Where in Australia is coal mined near the surface?

Gold-mining in Westland · There is also gold-mining in Westland. The gold is obtained as it is in the Canadian Yukon, with huge dredges. These dredges have a row of giant buckets which dig deep into the gravel in the river bed. The grains of gold are washed from the gravel and the waste is dropped behind in long ridges. One of the dredges we see is the largest in the world.



A map of our journey.

Farming in Westland · What of farming on the level land in Westland? At Hokitika, a coastal town, we ask a farmer who has driven in to buy supplies if he can tell us about his work. "I raise beef cattle and fat lambs," he says. "Some of my neighbours go in for dairying to produce butter. We have six butter factories here. The beef is shipped by train to Christchurch. We can get our stock there in twenty-four hours."

He tells us that, besides mining and farming, Westland is known for lumbering. The chief product of the forests is *rimu* logs, from a New Zealand native tree, used as telephone poles and railway ties.

SOMETHING TO DISCUSS · The Westland farmer ships his beef cattle across the mountains to the east coast. Why does he do so?



Trade Commissioner of New Zealand

Sheep on South Island.

A mixed farm on the Canterbury Plains · After recrossing the mountains, we are at Christchurch again. Our guide, who is a professor at the university, tells us that he was in Canada some years ago, studying our farms. He is going to take us to visit a farm on the plains, near Ashburton, about fifty miles south of Christchurch.

"My friend has what we call a mixed farm," he says. "It is called that because the land is not used for one purpose only—for dairy cattle, or for beef stock, or for wool, or for crops; the farmer prefers to have some of each on his farm."

When we arrive at the farm, the owner explains that this part of New Zealand is something like the prairies of Canada. The climate is fairly dry and very sunny, and a lot of grain is grown. "We grow about a fifth of all the grain and peas in the country right here in this county," he says. "Wheat, oats, and peas take up nearly two-thirds of our land. Next comes green fodder, root crops, and grass seed.

"I had better say a few words about the climate. There is about the same amount of rain every month—two or two and a half inches, and our coldest month averages 40° while the hottest averages 60°. The rainfall is light here compared with what they get on the other side of the mountains, and it soaks into our fine, powdery soil very quickly.

"To supply the extra water we need, we use a large canal to bring water from the river, and then smaller canals to carry it to the fields. You use irrigation like that in western Canada, I believe, in Southern Alberta on the drier side of the Rocky Mountains.

"The shelter belts here will also be something you understand. The rows of pine trees stop the dry northwesterly winds from blowing our soil away.

"My farm covers about 550 acres, with another ten acres for buildings and barnyard. We have about 600 sheep, four horses, six cattle, two pigs, and about thirty hens and a few ducks.

"Do I need a lot of help with the work?" our farmer friend goes on. "No. I work this farm with one hired man. Our secret is that we use plenty of machinery, and there is now electricity on every farm in the county. Electricity pumps the water for the stock, cuts the feed, and does the shearing. It also runs the milking machine.

"We take our products to market by truck and I drive to fairs in a car—one, by the way, made in Windsor, Ontario. We like the life, but it keeps us busy."

Other farms on the plains · As we leave the farm to continue our trip southward, our guide reminds us that we have visited a mixed farm. "In this area there are also farms used for special crops," he says. "Some of them have hundreds of acres of truck or market crops; others may specialize in dairying; or a whole district may be used for orchards. I know of one farm with a thousand acres of onions. There are also large farms used for growing grass seed to sell in this country and abroad."

SOME QUESTIONS TO ANSWER · **1.** White clover seed from New Zealand is imported into Oregon for planting on dairy farms. Find out what you

can about the climates of South Island and Oregon. How do they compare?

2. New Zealand imports large amounts of wheat from Australia. Why do the New Zealanders not grow enough for their own use at home?

On to Dunedin · We have yet to see something of southern South Island. After we have driven from the farm to Ashburton, we take a train going south. The railway first crosses part of the plain, to reach the seacoast at Timaru. Then it follows the coast to the Otago Peninsula, near which is Dunedin and its seaport, Port Chalmers. The map shows us that Dunedin is about as far south of the equator as Ottawa is north of it. Although we shall go no farther south, the railway continues to Invercargill and beyond, not far from Stewart Island.

Dunedin · Dunedin's first residents were Scots, and the name of the city is Scottish for Edinburgh, the capital city of Scotland. The city was started by a gold rush in 1861, and was for a time the largest and richest settlement in the country. Today it is important mainly for its manufactures. There are shipyards, woollen mills, and, not far away, coal mines. Deep-sea fishing is also carried on. Dunedin is proud of having the oldest university in New Zealand, and a world-famous medical school.

The climate around Dunedin is more severe than in most of New Zealand. The winds blow in off cool waters and sometimes dash the spray high over the rocky shoreline.

BACK TO AUCKLAND BY SEA

As we sail for Auckland from Port Chalmers, there is time to read more about New Zealand and to test what we know with some questions. We first turn our attention to the other main island of New Zealand, which we have not had a chance to visit.

Stewart Island · Stewart Island, which lies off the southern coast of South Island, also has a Maori name. It is Raki-ura, or "Isle of the glowing skies." The main settlement is Oban. Does this name give a clue to the first settlers? The island is an attractive holiday resort. Oysters are the main export.

Antarctica · Dunedin has long been a port of call for expedition ships sailing to the Antarctic. Southward beyond some small islands and around Ross Sea is the New Zealand part of Antarctica, called the Ross Dependency. It includes the place used as a base by Captain Scott and others who sought the South Pole.

MAP WORK · **1.** On an outline map of New Zealand mark these cities: Invercargill, Dunedin, Christchurch, Greymouth, Wanganui, Nelson, Wellington, Napier, Auckland. Underline the names of the four largest cities. Are any of them far from the sea?

2. Copy from a map the important railway lines connecting these cities.

3. The line from Christchurch to Greymouth crosses the Southern Alps by a long tunnel under Arthur's Pass. Which is the longest tunnel in Canada?

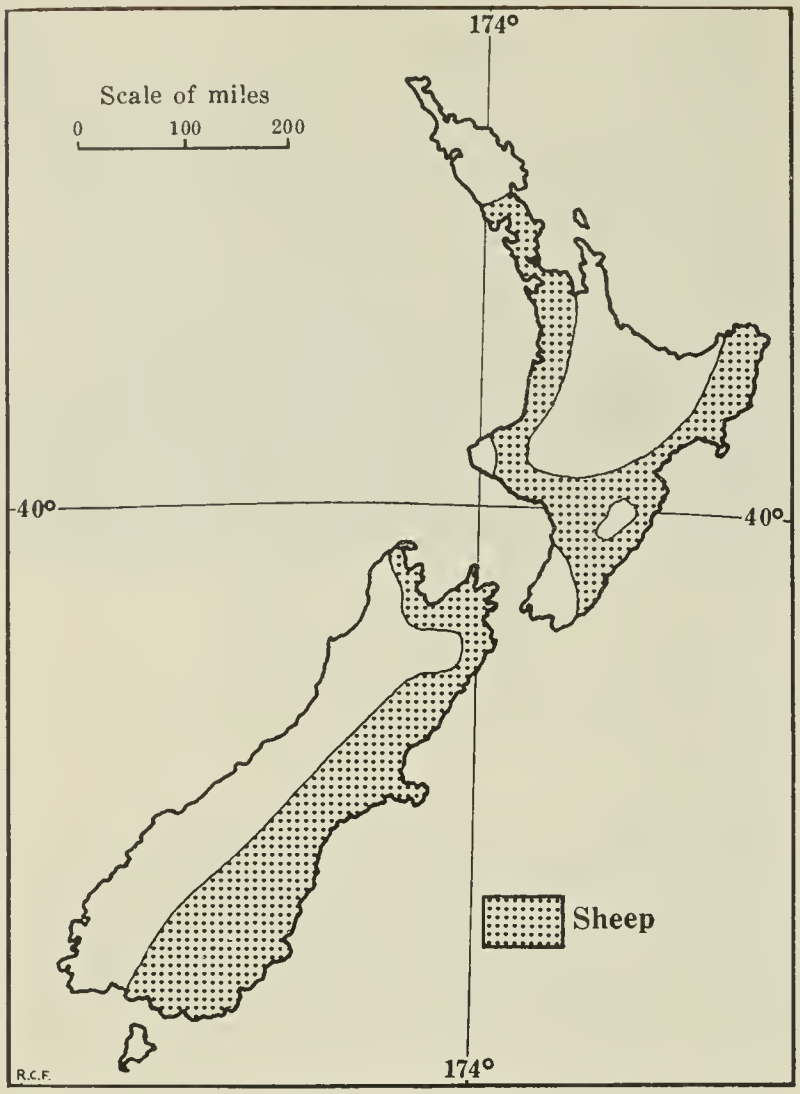
4. Show on the map, by shading in colour, the Southern Alps and the mountain areas of North Island.

5. Invercargill is the second most southerly city in the world. Which is the most southerly city?

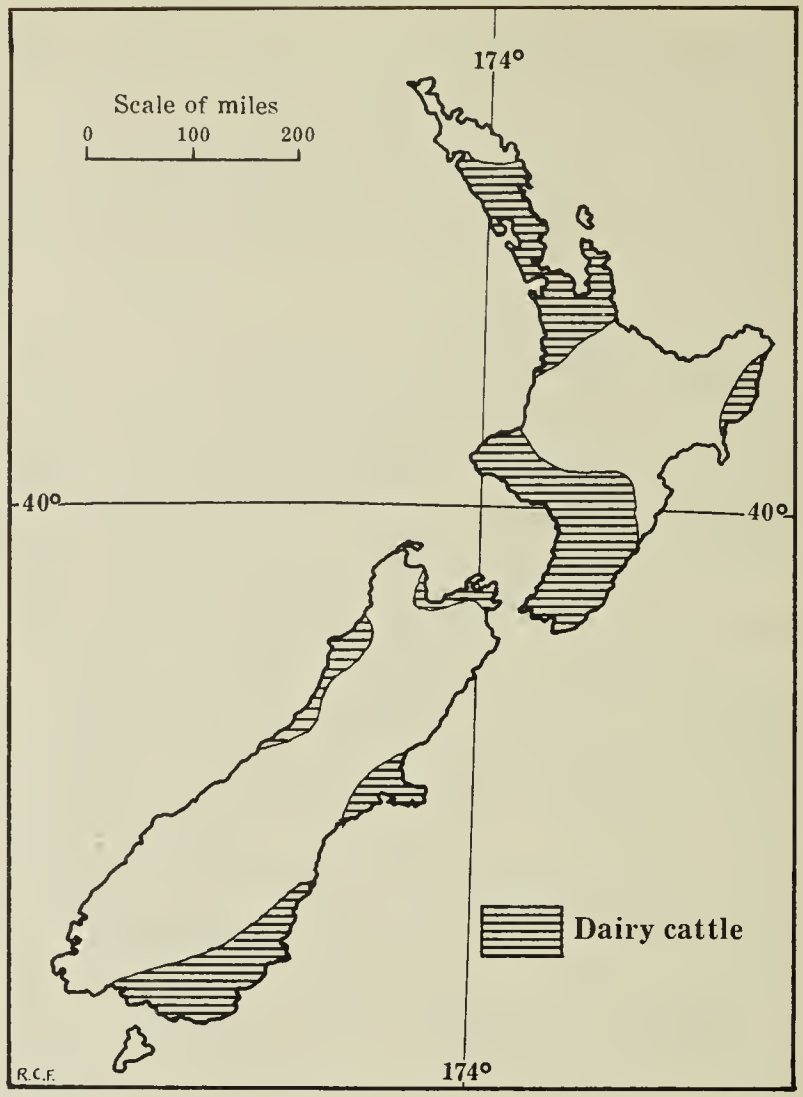
LOOKING BACK AT NEW ZEALAND

Once more we are back in Auckland, and we spend a few days studying our guidebooks, looking at maps, and questioning experts, to find out all we can about New Zealand before we take the ship home to Canada.

How the people make a living · Many of the settlers who left the British Isles to live in New Zealand went there to be farmers. To-



Where sheep are raised in New Zealand.



Where cattle are raised in New Zealand.

day most of the people on the two islands are still farmers, or earn a living by handling farm products. Butter, wool, frozen lamb, and cheese are the four leading exports of the country.

Our guidebook gives a list of the kinds of work New Zealanders do. Here it is:

Dairy farming	75,000
Sheep farming	35,000
Other farming	40,000
Work in industry	105,000
Work in shops and offices	100,000
Work in transportation	62,000

Grasslands of New Zealand · The grasslands are the finest in the world. Of the twenty million acres of land being farmed, seventeen million are sown to grass. New Zealanders export grass seed to be planted in other parts of the world.

Cattle and sheep · The climate of New Zealand is mild enough for cattle and sheep to graze out of doors the year round. Most of the cattle are raised on North Island, in the western sections of plentiful rainfall. On the eastern, rather dry section of South Island, including the Canterbury Plains and the Otago Plateau, there are millions of sheep. There are others on the east coast of North Island. At first they were bred for wool, but when refrigerator ships were invented, it became possible to carry frozen lamb the 13,000 miles to England. As a result, many farmers began to raise meat animals, or combined the two varieties.

High-quality products · The government and the farmers of New Zealand are careful to see that all their meat and dairy products are of the highest quality. This is because they must compete in Britain's market with

products from nearby Denmark and Ireland. Animal products, such as wool, hides, rabbit skins, sheepskins, and tallow, and fresh apples and pears make up a large part of the outgoing cargoes from New Zealand.

SOME QUESTIONS TO ANSWER · **1.** The map on page 208, showing the distribution of sheep in New Zealand, shows almost none on the west side of South Island. How do you explain this?

2. The maps on page 208 show few sheep or cattle in the centre of North Island. What is the reason for this?

3. Why must New Zealand farm products be of high quality?

4. Refrigerator ships caused a change in New Zealand farming. What was this change?

Trade with Britain · Could you list, from what you have read, the five most important cargo items in the ships leaving New Zealand ports? All five are produced on farms. We already know that most New Zealand exports (four-fifths) go to the British Isles. Why is this? It is partly because the New Zealanders are descended from British settlers, but the main reason is that New Zealand produces foods and other farm products which are needed by the people of Britain, most of whom live in crowded cities.

Imports from abroad · What products should you expect New Zealanders to import? There are many articles and some raw materials which they do not produce at home. They include some kinds of machinery, various metals, clothing, hardwoods, oil, and electrical goods. Iron and steel, some fruits, tobacco and cigarettes, tea, and sugar are other items imported in large quantities. Visitors to New Zealand notice the close ties with Britain. Newspapers advertise British-made goods, cars and bicycles are usually imported from England, and news in the papers and on the radio is mainly from Europe. From Canada come automobiles and newsprint, although some of the latter is now being made from locally-grown pine trees.



Trade Commissioner of New Zealand

Frozen beef ready for export.

A distant land · New Zealand is badly handicapped in trading with other nations because of its distant location. The nearest country is Australia, and it is more than a thousand miles away. This means that there are high freight charges on everything imported into New Zealand. It also means that exports, such as farm products, may be expensive when they finally reach other countries. In spite of this handicap, New Zealanders carry on trade all over the globe. Their exports go mainly to Britain, the United States, Australia, India, Canada, Egypt, and Fiji; their imports come from Britain, Australia, the United States, Can-

Churning butter at a butter factory.

Trade Commissioner of New Zealand





Trade Commissioner of New Zealand

Milford Sound, South Island.

ada, India, Fiji, Iraq, and Egypt. New Zealand is a prosperous land, its people are among the healthiest in the world, its cities are modern, and its farmers and the people of the cities and towns are industrious and prosperous.

Scenery · Although New Zealand is far away from the densely populated parts of the world, many visitors come to the islands because of the pleasant climate and beautiful scenery. There are snow-covered mountain ranges, glaciers, high waterfalls, lakes, and geysers. Good roads have been built connecting the cities, and some of the most attractive regions are now national parks. On North Island, Mount Egmont, an extinct volcano, 8,360 feet high, can be seen from ships many miles offshore. Mount Ruapehu, in the Volcanic Plateau of North Island, is a strange, active volcano. Part of its crater contains a small hot lake, but along the edge there is glacial ice. On South Island there are five mountain peaks more than 8,000 feet in height, in addition to Mount Cook, the highest of them all. The native name for this mountain is Aorangi, "the Cloud Piercer."

Visitors to South Island admire the strange and beautiful birds, such as the green-and-red parrakeets, the tui, or parson bird, and the kea, or mountain parrot. Having seen and read about this beautiful land, we can now understand why New Zealanders like to call their country "the scenic wonderland of the Pacific."

A Commonwealth Nation · Before leaving New Zealand, we should learn something about the way in which it is governed. The whole country is governed by a Parliament, made up of two parts, as is that of Canada. The Legislative Council is rather like the Canadian Senate, for its members are appointed. The House of Representatives is like the Canadian House of Commons. Its members are elected by the people. There are no separate provinces in New Zealand, and so there is no need for provincial governments.

New Zealand, like Canada, is a member of the Commonwealth of Nations. It is, of course, an independent country like ours, but it works closely with Britain, Australia, Canada, the Union of South Africa, India, Pakistan, and other members of the Commonwealth. The people of New Zealand are British subjects, as are those of Canada, but they are also New Zealanders, just as we are Canadians.

PICTURES · Obtain as many good pictures as you can of plants and animals which are native to New Zealand, and add them to your scrapbook. You will find that postage stamps often have such pictures on them.

A PROBLEM · Why is New Zealand sometimes called "the Denmark of the Pacific"? Try to find out about Denmark, to discover ways in which it is like New Zealand.

SOMETHING TO FIND OUT · **1.** The New Zealand government explains that one reason why farmers are so successful is because they use co-operatives. What do they mean by this? What is a co-operative? How could a co-operative plan help the New Zealand farmers?

2. One of the first two men to climb to the top of Mount Everest, the highest mountain in the world, was a New Zealander. Where could he have learned mountaineering?

XII · Africa



T.W.A., Inc.

These giraffes are more interested in the click of the camera than in the snowy peak of Mount Kilimanjaro towering high above them.

A FIRST LOOK AT AFRICA

Once again we leave our homes in Canada, this time to journey to Africa. Our ship is bound for Cape Town, at the southern end of the African continent. From there we shall travel northward through many countries, learning everything we can about the scenery and the weather, and about the people, their lives and work, how they govern themselves, what goods they trade with one another, and what they exchange with other lands.

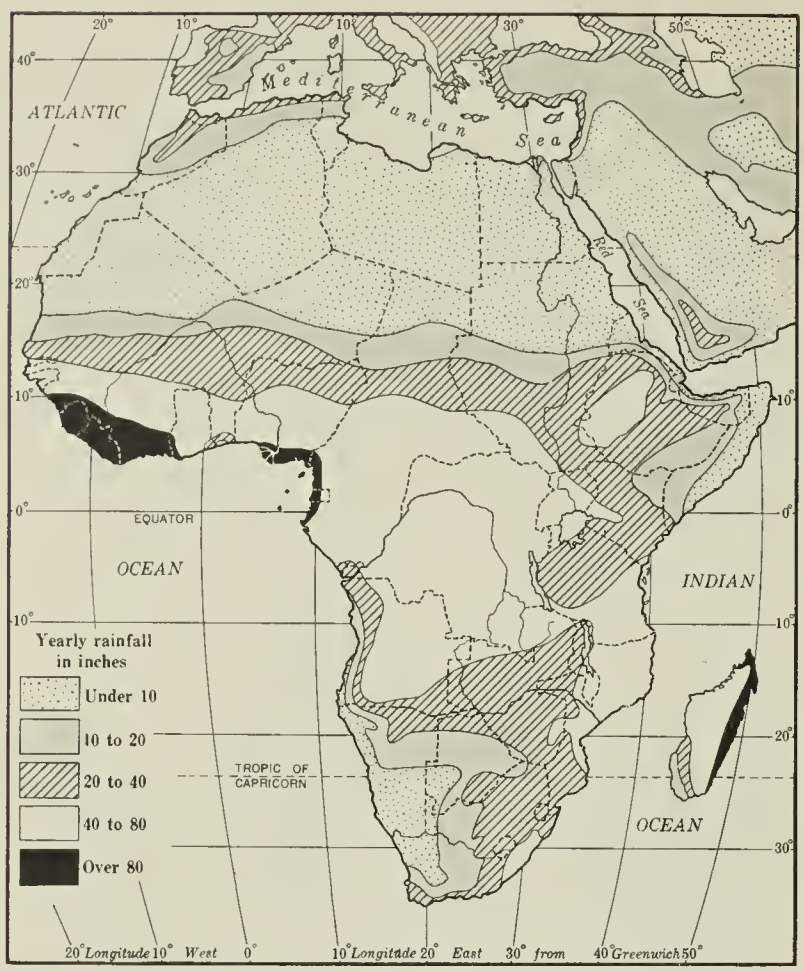
THE LAND

A huge continent · Africa is very large—the largest of the southern continents. From its northern coast to Cape Town in the south, it is roughly 5,000 miles. This is about the same distance as from Toronto to Valparaiso in Chile. From east to west at its widest point, it is 4,500 miles—about the same distance as from Ottawa to Hawaii.

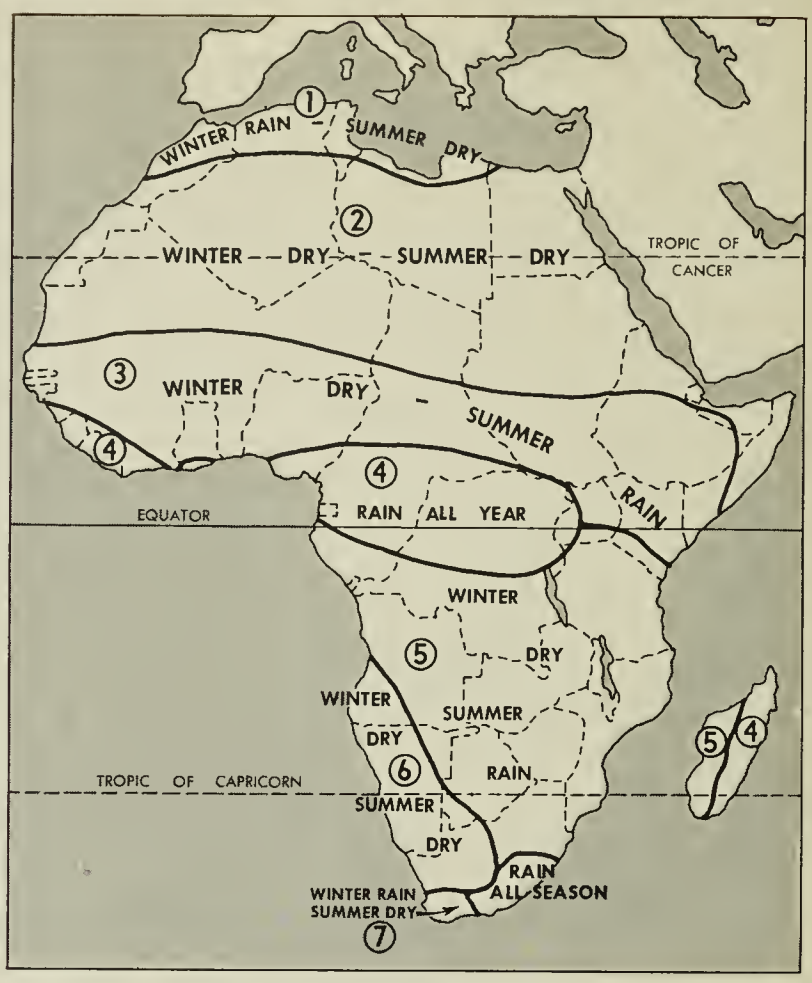
A plateau land · Most of the continent is a plateau, well above sea level. In many places it drops steeply down to the sea; only in a few places is there much level land along the seashore.

In some parts the plateau surface has been worn down, or eroded, more than in others, so that some areas are low while others still remain high. On the map on page 249, look at the area around the Congo River in Central Africa. It has been worn away until it is only about 1,000 feet above the sea, while the land around it is much higher. This lower area is called the Congo Basin.

In the eastern part of Africa, there are very large cracks, or rift valleys, in the



Average yearly rainfall in Africa.



When it rains in Africa.

plateau. Some have become flooded and form lakes. Locate Lake Nyasa, which is one of these rift-valley lakes.

Mountain ranges · Although most of Africa is a plateau, in some areas there are mountain ranges. In the far north, near the Mediterranean Sea, are the Atlas Mountains. These are folded mountains, formed like the Rockies and the Andes. Near Lake Victoria there are mountains formed by volcanoes. Find Mount Kilimanjaro and Mount Kenya on the map.

In some parts of Africa, the edge of the plateau has been worn away by the weather, just as has the edge of the Laurentian Upland north of the St. Lawrence River in Quebec. In the far south, the edge is very rugged. To go inland there, you have to climb over several of these "edges" of the plateau, or escarpments, each higher than the last, before you reach the real top of the plateau. Look at the diagram on page 221.

Rivers and waterfalls · On the map on page 249, notice the rivers and lakes of Africa. In some areas there are many rivers, because there is much rainfall. In other places, there are very few rivers, or none at all. Locate these large rivers—the Nile, the Niger, the Congo, the Zambezi, and the Orange.

Because much of Africa is a plateau, most of the rivers must fall a long way to reach the sea. Examples of these falls are the famous Victoria Falls on the Zambezi River and Murchison Falls on the Nile. Rivers with waterfalls are useful for developing hydro power. Africa has the largest amount of unused water power in the world.

AFRICA'S CLIMATE

Rivers and rainfall · Rivers help us to learn about rainfall. They are really like giant drains, carrying the rain water off the land into the sea. If there is little or no rain, there can be no rivers. Look at the map on page

249 and decide which places you think have little or no rain, and others which seem to have much. Then look at the rainfall map of Africa on page 212. Did you decide correctly which are the wet and dry parts of the continent?

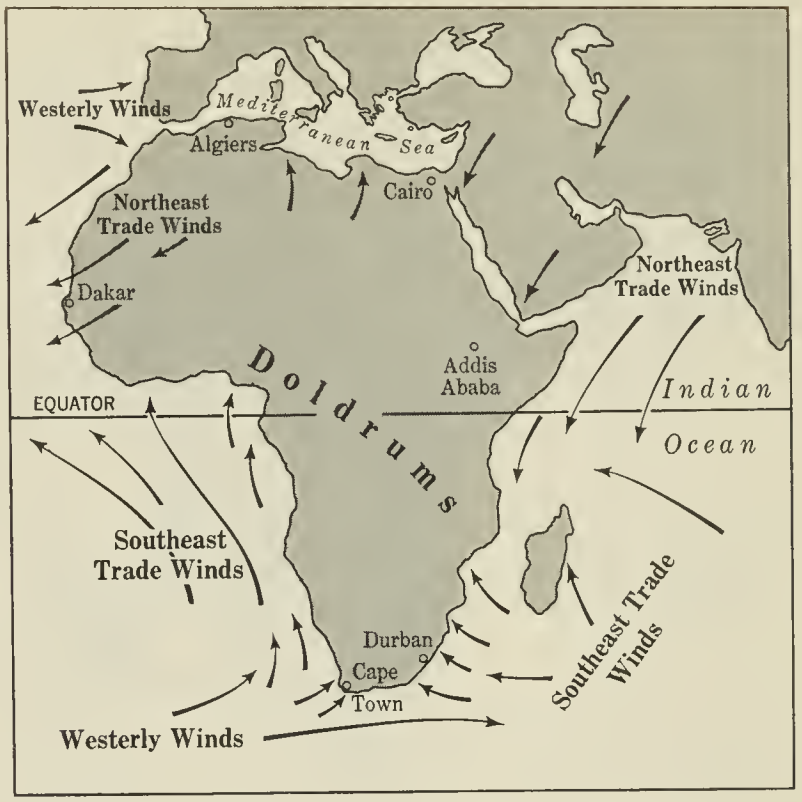
The dry lands · Most of North Africa is so dry that much of it is desert. The Nile River, which flows through the area, gets all its water far to the south in Central and East Africa. Another very dry part of Africa is in the southwest. It is often called the Kalahari Desert, although not all of it is really a desert.

Wet and dry seasons · When we studied Australia, we found that some parts of the country have rain for part of the year only and dry weather for the remainder. This is true of Africa too. Look at the rainfall map on page 212, which tells when rain usually falls in each part of the country. Beginning at the Mediterranean Sea and going southward to Cape Town, the rainfall pattern is:

1. Winter rain, summer dry
2. Winter dry, summer dry
3. Winter dry, summer rain
4. Rain all year
5. Winter dry, summer rain
6. Winter dry, summer dry
7. Winter rain, summer dry

Look at this list carefully. The first and last lines are the same, "winter rain, summer dry." Numbers 2 and 6 are also the same, and so are 3 and 5. Number 4, in the centre near the equator, is "rain all year." This arrangement of wet and dry seasons in Africa should be easy to remember.

Winds across Africa · Look at the map on this page, and find the winds and calms across Africa. Find the westerlies, the northeast trades, the southeast trades, and the doldrums. This map shows where each crosses Africa in January.

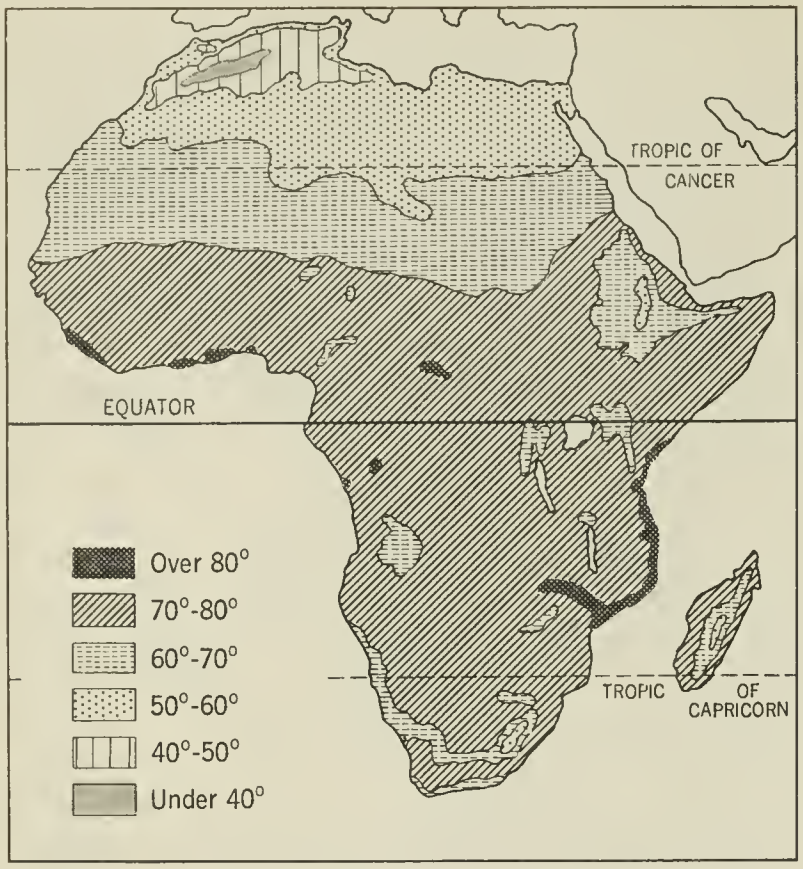


The prevailing winds and calms which cross Africa in January.

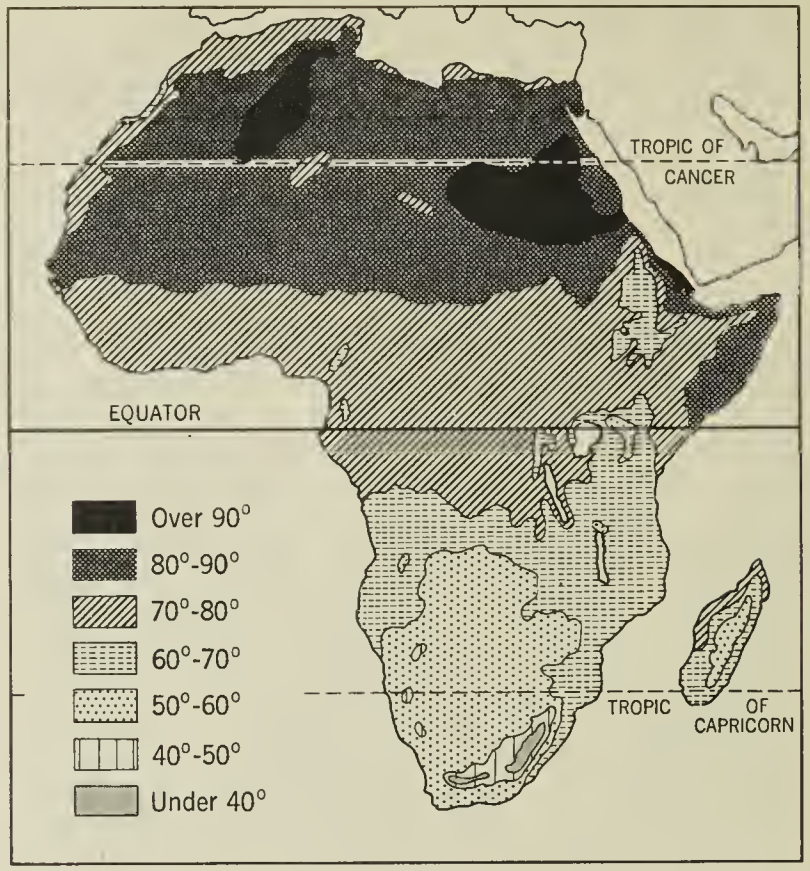
Is Africa hot? We usually think of Africa as a very hot land; but is it? Remember the huge size of the continent. If you were asked, "Is it hot in North America?" you would probably reply, "It depends on where you are." This is also true of Africa. The northern part of the Sahara Desert in summer is about the hottest place in the whole world; it is even hotter than the area around Wyndham in Australia. Yet it can be very cold in winter in the Atlas Mountains, which are also in North Africa.

Height above the sea also affects temperature. Kilimanjaro, the highest mountain peak in Africa, is near the equator—but the top of it is covered with snow at all times of the year. That reminds us of something learned in the Andes of South America—the temperature gets lower as you climb higher, even at the equator.

The best way to answer the question, "Is Africa hot?" is to look at the two maps on page 214. One shows the average temperature in January and the other in July.



Average temperatures in January.



Average temperatures in July.

Notice first where the coolest places are. In January it is coolest along the coast of North Africa, where the temperature is about the same as in California at that season. In July, it is cool at the other end of the continent, in South Africa. Can you find anywhere in the central part of Africa where it is cool at any time of the year? Of course, it must be very cold on the highest mountains, where there is snow, but they are too small to show on the maps.

SOME QUESTIONS TO ANSWER · **1.** Which is the hottest part of Africa in January?

2. Do the doldrums and all-year-round rain occur in the same place?

3. Which winds blow across the Sahara and the Kalahari deserts?

4. Which parts of Africa get rain from the westerlies?

5. The edge of the Brazil Plateau gets rain from the trade winds blowing in from the sea. What part of the African plateau should get rain for the same reason? Look at the rainfall map on page 212. Does this part of Africa get rain?

6. Rain falls at the northern end and the southern end of Africa in winter. Does it fall in the same month of the year?

AFRICAN PEOPLES

We have been learning something about the land, its rains and winds, where it is hot and where cold. Now let us find out something about the most important thing in geography—the people. There are about two hundred million people on the continent of Africa. They are about as varied as they could be.

The First Africans

To understand the distribution of the different kinds of peoples in Africa today, let us first study those whose ancestors lived there before European and Asiatic settlers arrived many centuries ago. These are the original Africans.

Where they live · We already know about one kind of African—the Negroes. There are a few of them in Canada, descended from

people who came from West Africa centuries ago. Find the word "Negroes" printed on the map on page 216. As you can see, they live a little north of the equator, mainly in West and Central Africa.

Another group of Africans is related to the Negroes. These are the Bantus. Most of them live south of the equator, scattered over a very large area.

In the dry lands of North Africa there are two peoples. At one time there were only Berbers, all the way from the Indian Ocean to the Atlantic. Later, Arabs moved in from Asia, and so today the two peoples live together. Locate their names on the map.

In the southwest corner of Africa there are two peoples, the Bushmen and the Hottentots. In the dense forests near the equator, there are some very small people known as Pygmies. Last of all, in Madagascar, off the east coast of Africa, there are distant cousins of the Polynesians.

How these Africans live · Now let us find out how the native Africans live.

The Bushmen are still hunters. They have no regular homes or villages, but move about in the dry lands near the Kalahari Desert to find their food. They have no farms or gardens, and keep no cattle.

The Hottentots are herders. They count their wealth in sheep and cattle. Some of them have gardens and grow small amounts of food. They live in villages made up of huts shaped like beehives. Near the huts is a corral for the cattle, and around the whole village there may be a fence made of thorn branches.

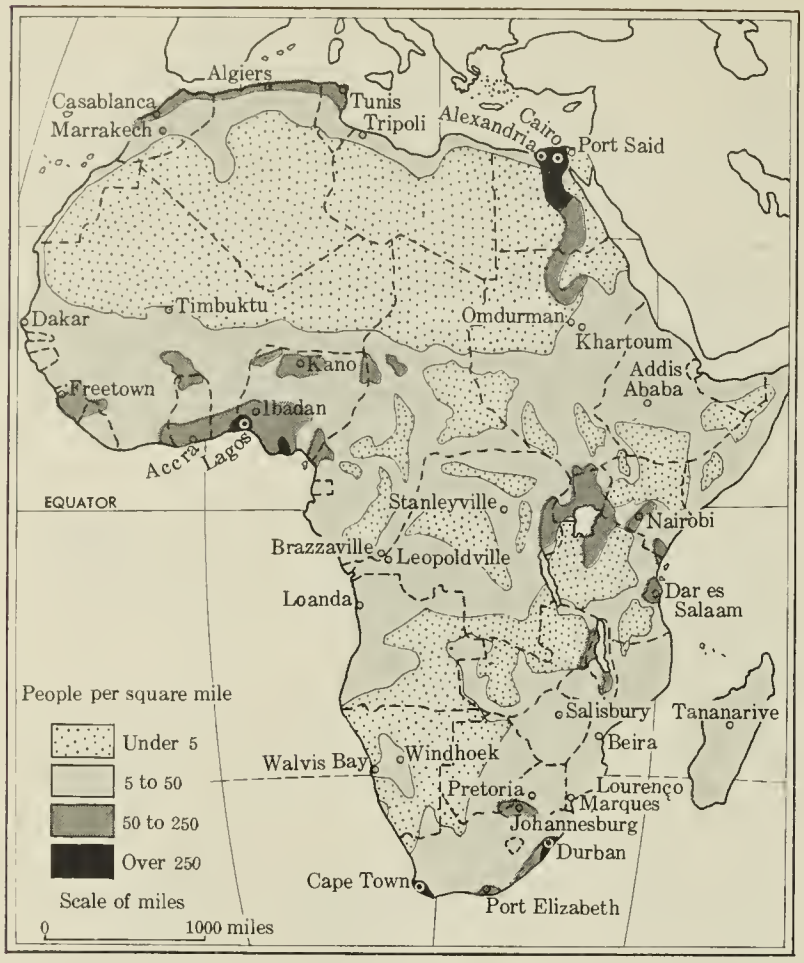
The Negroes were small farmers before the white men came to Africa. They grew bananas, manioc, millet, and beans. They dug the land with hoes, as they did not use the plough. Some Negroes lived in large villages or towns, and carried on trade with distant places. Today many of them live in the old way, but more and more are learning European ways.

There are more than 40,000,000 Bantus in Africa, and they occupy about a third of the

A native kraal in Swaziland, with beehive huts enclosed by a protecting fence.

British Information Services





Population of Africa.



The peoples of Africa.

whole continent. Many of them live today much as they did before the Europeans found them. Some are cattlemen or farmers; some are craftsmen with wood or metal or are weavers of cloth. Bantu villages are clusters of beehive huts called *kraals*. Some tribes have their own government, with a king and parliament. More and more Bantus are now seeking work in cities, at mining camps, and on the farms of white settlers.

In North Africa, near the Mediterranean Sea, the Berbers have regular homes in villages or cities, and work as farmers, craftsmen, or herders. Many of the Arabs are nomads, who move with their herds from place to place, wherever the pasture is good.

A LIST TO MAKE · To help you remember the names of the native Africans, make a list of them, and beside each name add a few words telling where those people live. Begin your list like this: "Negroes—West and centre, north of the equator." Remember that many Africans are a mixture of different races.

Europeans Reach Africa

Now let us find out how the Europeans came to settle in Africa. To make it simpler to understand, refer to the map on page 217.

The first settlements · The Europeans came to Africa by sea. The northern coast was nearest to them, and they reached it easily across the Mediterranean. They settled along the coast, but the Sahara Desert stopped them from moving farther south.

Portuguese traders, sailing southward along the west coast of Africa, reached the Cape, in the far south, in 1487. Later they went on past it to sail along the east coast of Africa and on to India. On the map on page 249, find the Portuguese colonies in Africa. There are two main colonies, and two smaller ones. Are they along the route to India?

About 250 years ago, English trading ships sailed along the west coast of Africa. Settlements grew up at the trading posts, and some of them became colonies which are still

British today. Locate these West African colonies on the map: Gambia, Sierra Leone, Gold Coast, and Nigeria.

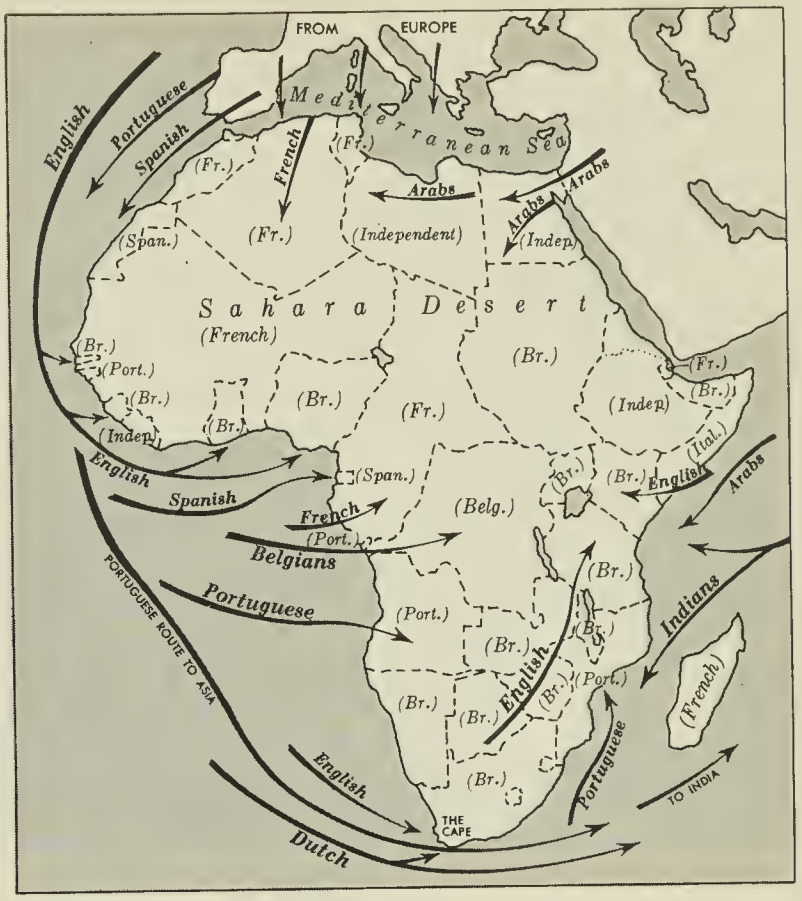
Dutch sailors on the way from Holland to the Far East, used to call at the southern part of Africa to pick up fresh water and food. It was they who named the place the Cape, and founded Cape Town as a village a little more than 300 years ago. Settlers arrived there from Holland, and some Malays were brought from the East Indies as servants. Later on, British settlers came. In this way, Dutch and British colonies began in South Africa. They finally joined together to form the Union of South Africa. Locate the Union of South Africa and Cape Town on the map.

Moving inland · About 150 years ago, exploration of the unknown interior of Africa began seriously, and in time every part of it was put on the map. Most of it was claimed by European countries. Locate these territories on the map—Belgian Congo, French West Africa, French Equatorial Africa, Southern Rhodesia, Northern Rhodesia, Nyasaland, Kenya, and Uganda.

Some independent countries · There are a few countries in Africa which have no connection with any foreign government. We shall learn more about them later. Locate these four on the map—Ethiopia, Egypt, Liberia, and Libya.

Asiatic Peoples in Africa

Asiatics have also for many centuries been travelling and trading along the east coast of Africa, and many people there speak Arabic and are *Muslims*, or followers of Mohammed. There are also many settlers from India, who originally came to work on sugar plantations or on the railways, but who now live in towns as craftsmen and shopkeepers. Some Chinese, too, came to Africa as labourers; most of them are now also town dwellers.



Europeans and Asiatics come to Africa.

A CHECK LIST · Make a check list of the European territories in Africa. First locate each one on the map, and then write down its name. Beside the name, put the European country with which it is connected. Begin your list in this way:

Angola — Portugal
Mozambique — Portugal
Portuguese Guinea — Portugal

FIND ON THE MAP · On the map on page 249, locate the following places—Morocco, Algeria, Bechuanaland, Somalia.

CAN YOU MATCH THESE? Match each of the peoples named in the column on the left with a description from the column on the right:

1. Bantus	*a.* North African nomads
2. Berbers	*b.* Herders in southwestern Africa who live in beehive huts
3. Bushmen	*c.* Cattlemen, farmers, and craftsmen of southern Africa
4. Arabs	*d.* North African townspeople, farmers, and craftsmen
5. Negroes	*e.* Hunters in the dry lands near the Kalahari Desert
6. Hottentots	*f.* Farmers and townspeople in West Africa



Cape Town and Table Bay from Signal Hill.

JOURNEY THROUGH SOUTH AFRICA

ARRIVAL AT CAPE TOWN

Into Table Bay · After weeks of seeing only the waves and the sky, we are looking forward to our first sight of Africa. The captain has warned us to be up early and out on deck. As dawn breaks, we see high, flat-topped Table Mountain, with mists hanging about its upper edge. Away to the right is the dark outline of Lion's Head. Along the shore, the lights of Cape Town still twinkle across the water.

With the coming of daylight, our ship slowly glides between the seawalls of the harbour and is tied up at the wharf, close to the city streets. Ahead of us is a big liner which arrived yesterday from England. Behind us is a Norwegian cargo boat, which has just come in from Rio. Other vessels in the harbour are on the way to and from Australia and the Far East. There are also smaller coasting vessels which voyage along the coast of South Africa, calling at Port Elizabeth, East London, Durban and other ports.

We notice that Cape Town does not have as good a natural harbour as have Rio and Sydney. Its harbour, Table Bay, was at one time wide open to storms. Seawalls and *jetties*, or breakwaters, have been built to protect it, and mud dredged from the bay to deepen the harbour has been dumped in shallow water to make new land for warehouses, factories, and homes.

Sight-seeing in Cape Town · We set out with Mr. Van Rooyen, who is to be our guide while we are in South Africa, to see something of Cape Town. As we walk along the streets, there is much to remind us of home. Buses, streetcars, and buildings are like those in our own Canadian cities. But we notice that the traffic keeps to the left, and we see many palm trees that remind us of Los Angeles or Rio. Many of the people are dif-

ferent, too. We hear English, of course, and *Afrikaans*, which is a kind of Dutch. We pass coloured people and dark-skinned Bantus. Now and then we see a Malay or a Hindu. South Africa is a meeting place of people of many races.

We already know that Cape Town is an important seaport. We learn that it is also an important railway terminus, and that from here a railway runs northward right into the heart of Africa.

Cape Town is a manufacturing city too. It has many industries, supplying the goods that its people need. We see flour mills, sugar refineries, factories for weaving cloth and making shoes, furniture, paper, and many other articles.

A government centre · Cape Town is a seaport, a railway terminus, a trading and manufacturing city, and what else? Most important of all, perhaps, it is a government centre. Here are the legislature and the government offices of Cape of Good Hope Province. The province is a large one; it stretches for about 750 miles eastward from the city—about as far as from Toronto to Fort William. Cape Town shares in the government of the whole country, too. The Parliament of the Union of South Africa meets here, but most of the government offices are almost a thousand miles away, in Pretoria, far to the north.

A visit to the Rhodes Memorial · During a visit to the Cape Town Botanical Gardens, we see a statue of Cecil Rhodes. Then we drive out to nearby Rondebosch to visit the memorial to him. Rhodes was an Englishman who went to live in the sunny climate of South Africa for his health. He did much to open up southern Africa. Northern and Southern Rhodesia are named after him.

SOME QUESTIONS TO ANSWER · **1.** The graph on page 275 shows in which months rain falls in Cape Town and whether it falls in the cool or the warm season. Remember that May, June, July, and August are the winter months. What other part of the world has the same kind of climate as Cape Town?

2. Why does the South African Parliament meet about a thousand miles away from most of the government offices? Remember that there were once separate colonies which joined together to form the Union of South Africa.

3. The Atlantic and Indian oceans come together at the Cape of Good Hope. Where they meet, the water of the Atlantic is much colder than that of the Indian Ocean. Why is this so?

SOMETHING TO DO · In reference books find out about the work Cecil Rhodes did in Africa and prepare a report about him for the class.

A letter home to Canada · During the next few days, we drive out to see the surrounding countryside. Here is a letter Bill wrote to his father, describing one of our trips.

Cape Town, September 30.

Dear Dad,

Some friends of Mr. Van Rooyen took us for a long trip through the countryside. We drove along the road that leads eastward to Port Elizabeth, but we didn't go all the way to that city. The weather was beautiful, with bright sunshine, and the countryside was not all dried up as we thought it might be. There is more rain in this part of South Africa than there is farther north, but there is still plenty of sunshine. That's why this area is used so much for fruit farming.

Our first stop was at Paarl, in the Drakenstein Valley. There we saw large fields with rows of grapevines. A lot of South African wine is made there. We also saw grain fields, with oats, wheat, and barley. The seed is planted in the fall here, and the harvest comes in early summer when the weather is hot and dry. The people who live here don't



Photograph from Press Association, Inc.

Choice grapes in a vineyard near Cape Town.

speak much English; Afrikaans is their first language.

After we left the valley, we drove over a mountain pass to Caledon, and then on through rich farmlands until we reached the Indian Ocean at Mossel Bay. There are lovely sandy beaches along this coast, as well as some high, rugged cliffs.

To get back inland, our car had to climb through a steep pass, where the road wound back and forth, with big cliffs on each side. We drove on to a small town called Oudtshoorn—which, as you can guess, is an Afrikaans name. There we visited an ostrich farm. These birds are raised for the feathers which come from their wings.

Apple blossoms in October. Spraying the trees in an orchard near Cape Town.

Caterpillar Tractor Co.



I should explain the arrangement of the country in this part of South Africa. The land is in several steps—very big ones, of course. The highest is the Great Karroo, a high plateau far inland. Nearer the coast there is a lower step, called the Little Karroo. It is quite a steep drop from one Karroo to the other. Then, again, there is a drop down from the Little Karroo to the seacoast. At the edge of each step there is usually a mountain range, with a pass going through it. Oudtshoorn is on the Little Karroo.

We left the Little Karroo and climbed part way up through a very long and winding pass. It was quite gloomy in places because of the high cliffs. As you climb, the countryside becomes much drier and the trees are left behind. Up on the Great Karroo, we were told, the land is not so good for farming because of the dryness. It is used mainly for raising sheep, and that is where much South African wool comes from. Wool is the most important export, next to gold.

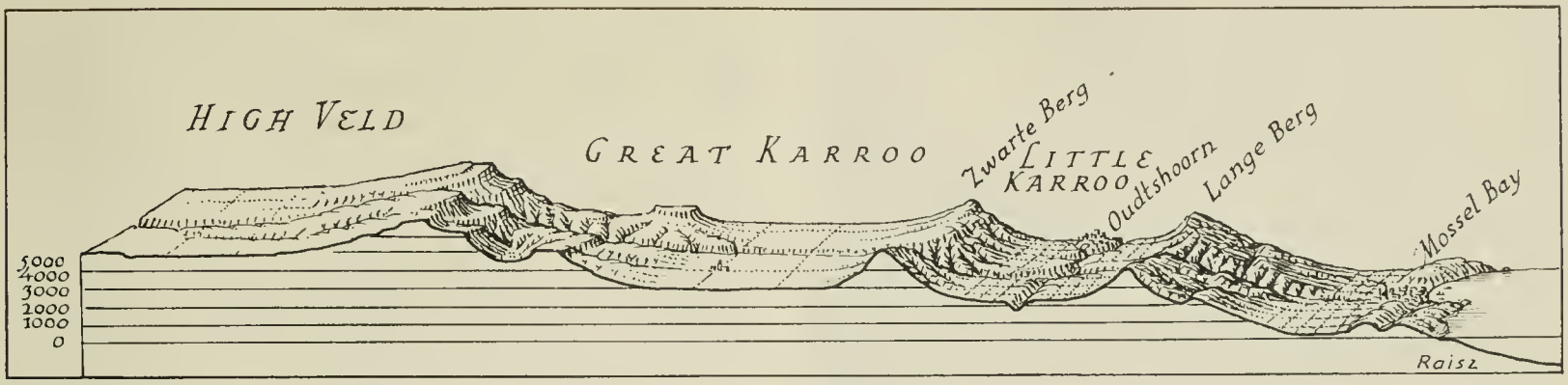
We didn't go all the way up to the Great Karroo, but turned back down to the bright green fields of the Little Karroo and then drove on to Cape Town by another road.

We are leaving tomorrow for the north. I am anxious to see how the Great Karroo looks from high in the air.

With love,
Bill

SOME MAP WORK · To learn about the location of places in South Africa, let us take a look at the map on page 222.

1. The Union of South Africa is divided into four provinces—Cape of Good Hope, often called simply Cape Province, Orange Free State, Natal, and the Transvaal. Find these provinces on the map. South-West Africa is governed as a sep-



How the land drops from the Great Karroo to the Little Karroo and down to the coast.

arate territory. Locate Basutoland. Notice that although it is surrounded by South Africa, it is a separate country governed from London.

2. Find on the map the Orange, Vaal, and Limpopo rivers. Find where each rises and follow it from source to mouth. The Orange separates Cape Province from the Orange Free State; the Vaal is the northern boundary of the Orange Free State; and the Limpopo is the northern boundary of the Transvaal.

These three rivers, like many other African rivers, are not always filled with water. In the dry season they may be rocky, dry ravines, but at other times they may be flooded. There is a saying that when you fall into a South African river, you should get up quickly and dust off your clothes, in case you get drowned in the next flood.

3. Each province has a capital city. On the map find Cape Town, in Cape Province; Bloemfontein, in the Orange Free State; Pietermaritzburg, in Natal; and Pretoria, in the Transvaal.

4. Look at the map on page 222, showing the route we shall follow on our trip through South Africa. Measure the distances between the places we shall visit, and total the miles.

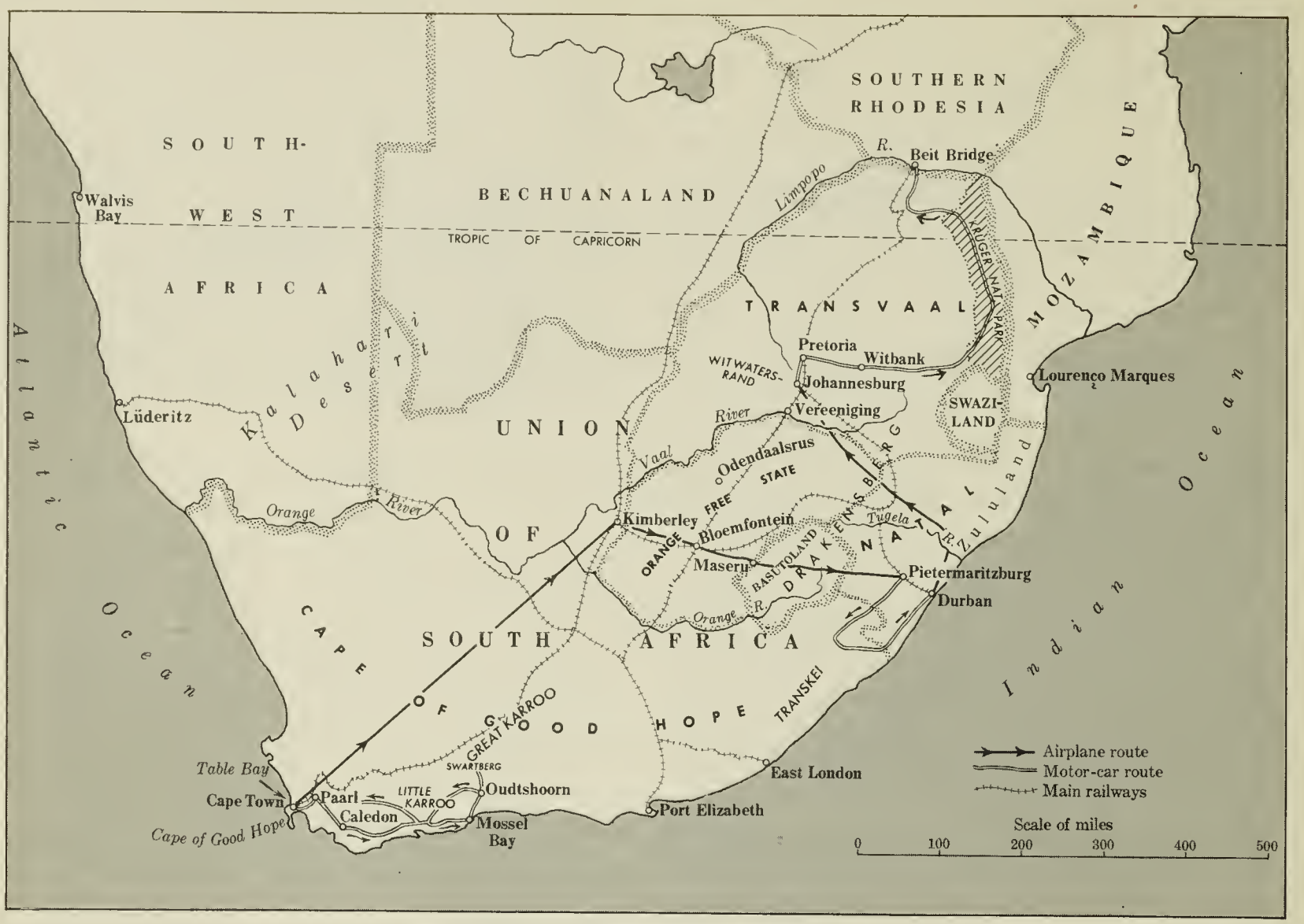
FROM CAPE TOWN TO KIMBERLEY

Over the Karroo · We take off from the Cape Town airport for a two-hour flight to Kimberley, near the northeast border of Cape Province. After a few minutes in the air, we pass over vineyards almost three hundred years old, over wheat fields and fruit farms. There are trees along the winding water courses, but most of the country is rather dried up, as summer is approaching. We know that the fruit farms are irrigated, for we can see the straight canals running across the fields and orchards. Oranges, lemons, and grapefruit are raised here, we are told, and are shipped to England.

Soon our pilot heads for a pass where we can see a road running through the mountain ranges that rise ahead. There will be many ridges to cross before we finally reach the interior plateau. The last "step" before we do so is the Great Karroo.

A valley farm · Most of the country below us is dry and yellow and fit only for grazing sheep, goats, and cattle. Then we see a bright green valley. A stream runs through it, supplying water for irrigation, and the land on each side is divided into small orchards, vineyards, pastures, and fields of alfalfa. A small town has grown up among the rich farmlands.

The yellow veld · For the rest of our flight to Kimberley, we are above rolling prairie, called *veld* in South Africa. Lack of rain has turned its grasses yellow, but there are clumps of trees and patches of green fields here and there, where some hard-working farmer has found water for irrigation. There are no lakes, but now and then we cross a shallow hollow, called here a *pan*. The water in these pans is often salty.



Our trip through South Africa.

Kimberley, the "diamond" city · Not long after crossing the Orange River, we reach Kimberley. As our plane circles the city, Mr. Van Rooyen points to four huge round pits, one near the middle of the city. They were made in the early days of diamond-mining.

Diamonds · Our first trip in Kimberley is to the "Big Hole," as the famous mine in the city is called. It is about a third of a mile across, and about 1,400 feet deep.

"Diamond-mining began in this area nearly a century ago," Mr. Van Rooyen tells us. "A farmer bought a 'magic stone' from a Bantu medicine man. It proved to be a large diamond, and within a year there were 140,000 people, from all parts of South Africa and from overseas, searching for diamonds. Miners, working by hand, made this huge hole in about fifteen years.

"Today, diamond-mining is a modern industry, much like other mining, with costly machinery and thousands of workmen. Here in Kimberley, and also in Pretoria, the diamonds are found in 'blue ground,' which is broken-down rock that fills the *pipes*, or hollow centres, of old volcanoes. The Big Hole was once filled with blue ground.

"Tunnels are made deep underground, and the rock is blasted out with explosives and taken to the surface, where it is crushed and mixed with water to form mud. About thirty-five million pounds of rock yield only one pound of diamonds. The mud is shaken back and forth on huge greased trays, and the diamonds stick to the grease while the pieces of rock are washed away.

"Another way of getting diamonds," Mr. Van Rooyen goes on, "is used on the Vaal

River. There the diamonds are obtained in the same way as gold is mined in the Yukon in Canada. The river gravel is dug up by large dredges and washed, and the diamonds are sorted out from among the small pebbles.

"Long ago, streams and rivers eroded much blue ground from volcanic regions and carried the mud and diamonds towards the west; almost to the Atlantic Ocean. Some diamonds were dropped along the way, and those are the ones now dredged from the Vaal. Others were carried farther, and when some of the streams dried up, the diamonds were left in the soil near the surface of the veld. It is so easy to find them that a fence has been put around the whole area to keep people out.

"Only a certain number of diamonds are put on the market each year, because if too many diamonds are sold at one time, the price will fall. South African diamonds pay for the goods we need from other lands, including imports from Canada."

SOMETHING TO DO · Visit a jewelry store in your home town to learn how diamonds are cut and weighed, and explain the process to the class.

A CLASS DEBATE · Diamonds are valuable because not too many of them are put up for sale at a time. Have a class debate on the subject: Resolved that all the diamonds that can be found should be put up for sale so that they would not be so expensive.

FLIGHT TO BLOEMFONTEIN

On to the Orange Free State · From Kimberley we fly eastward to Bloemfontein. Soon after taking off, we leave Cape Province behind us, and fly across the Orange Free State. The land beneath becomes greener as we travel eastward. The dried-up, dusty grassland of the Karroo is replaced by cultivated fields. The farms have orchards and vegetable gardens. There are large fields of corn (here known as *mealies*), and here and there are windmills to pump water from the wells. We also see cattle sheds and plantations of trees. Many of these trees, we are told, are gum and wattle trees from Australia.



Keystone View Co.

Separating diamonds from gravel at a mine near Kimberley.

Bloemfontein · We land at Bloemfontein, the capital city of the Orange Free State and the site of the Supreme Court for the whole Union of South Africa. It is a city about the size of Calgary, with tree-bordered streets and shady parks. We know that it must be an important railway centre from the long lines of cars we see in the freight yards. The map on page 222 shows some of the cities to which trains run from here.

An old war · One link with Canada is a memorial in Bloemfontein to the Canadian soldiers who died in the Boer War of 1899–1902. As we walk along an avenue lined with maple trees that leads up to it, Mr. Van Rooyen tells us about that war.

"The Boer War was a war between the Dutch and British settlers here in South Africa," he begins. "Our word for farmer is *boer*, and so it was called the Boer War.

"The main cause was disagreement between the Dutch and British settlers on how

to govern this part of Africa. The Boers were farmers who disliked cities and believed that the Bantus and other natives should work for them. When the British settlers arrived in large numbers, the Boers packed their families and belongings into ox wagons and moved farther inland so as to be free to live as they wished. These people were called *Voortrekkers*, which means pioneers.

"There might not have been further trouble, but then diamonds and gold were found in the place where the Boers had settled, and thousands of foreign settlers rushed in. The Boers did not want these newcomers, and finally war broke out in 1899. After it ended, it was agreed that the two Boer countries, the Transvaal and the Orange Free State, should join the two British colonies, Cape of Good Hope and Natal, to form the Union of South Africa.

"The Union of South Africa has two languages, English and Afrikaans, just as in Canada you have English and French. Today, all of us in South Africa work together. We still have some troubles. We have not yet found out the best way of dealing with the many different races in our country. But we are doing our best. Most of us speak the two languages, and we are no longer Afrikaans or English, but South African."

CAN YOU SOLVE THESE PUZZLES? Here are a few words in Afrikaans, with their English meanings:

Afrikaans	*English*
berg	mountain
bloem	flower
burg	town
dorp	village
fontein	spring
kloof	steep-sided valley
kop	hill
zwarte	black

Can you give the English meanings for these names: Krugersdorp, Bloemfontein, Johannesburg, Pretorius Kop, Otto's Kloof, Zwarte Berg?

SOMETHING TO FIND OUT · The work of governing South Africa is divided among three cities —Cape Town, Bloemfontein, and Pretoria. In what way is the work divided among them? Which country of South America has two capitals?

A LETTER TO WRITE · Less than a hundred miles north of Bloemfontein, near a prairie village, Odendaalsrus, gold was found a few years ago. At that time the area was used for stock-raising. Now there are about twenty gold mines, and the village is soon expected to be a city of about 40,000 people. A new railway has been built, and several airfields. Water has been brought in by pipeline forty-five miles from the Vaal River, and a huge electric power station is being built. Houses, stores, offices, schools, hotels, hospitals, and streets are growing up on the veld. This Orange Free State goldfield may become one of the richest in the world.

Pretend that you are a boy or girl living in Odendaalsrus. Write a letter to a friend, telling how the discovery of gold, or other valuable minerals, can quickly change the countryside from a cattle range into a busy city.

FLIGHT OVER BASUTOLAND

A high, rugged land · To reach the coast of the Indian Ocean in the Province of Natal, we shall cross "the roof of South Africa," Basutoland. It is a rugged, mountainous land, the highest part of South Africa. Wet winds blowing in from the Indian Ocean bring it heavy rains, and rushing streams have eroded deep valleys in the surface of the land.

The Basutos, after whom the country is named, are a Bantu people who once lived farther west. European settlers searching for new farmlands forced them eastward into the mountains. There the Basutos could defend themselves, and they were never conquered.

Although we shall not stop in Basutoland, we shall see it from the air and learn much about it from Mr. Van Rooyen. Later, in

the Johannesburg gold mines, we shall see many workmen from Basutoland.

On our way · Our plane leaves the Bloemfontein airport and climbs rapidly to cross the mountain ranges ahead. As the land beneath us rises toward the mountains, the grass on it becomes drier and more yellow, and there are soon patches of bare red soil, where the thin grass has been worn away. There is less rain on this western side of the mountains, and the dry winds blow the soil away.

A protectorate · In the plane we have a map spread out in front of us. Mr. Van Rooyen is pointing to Basutoland on it.

"As you can see," he says, "Basutoland is completely surrounded by South Africa, but it is a British protectorate. That means that Great Britain takes care of the country and its people until they can look after themselves. A British official helps the native chiefs to rule their country."

Across the border · The railway tracks we have followed from Bloemfontein cross a bridge over a river and enter Basutoland. The bridge marks the frontier, and although we cannot see them, on one side of the river is a South African flag and on the other the Union Jack. Soon the railway ends. At the end of the line we see the capital town, Maseru. It includes government offices, law courts, technical and high schools, and other buildings and homes. The warehouses are important because goods for trading stores in all parts of the country are unloaded from the railway here.

The Basutos · Mr. Van Rooyen tells us a little about the people of this land. "There are about 700,000 Basutos altogether, but usually about 100,000 of them are away from their homes, working in the Union of South Africa either in the mines or on farms. Earning a living in Basutoland is a real problem. The Basutos are excellent farmers and sheep herders. The country exports a great deal of wool each year, as well as grain and cattle. But the Basutos are increasing in numbers, and all the good farmland is occupied. There is serious trouble from soil erosion. Those red splashes of colour over there on the hillside show what I mean. They show where the grass is worn off the

A scene in Basutoland. Why do the Basutos wrap themselves in blankets?

British Information Services



red soil. The land has been used to graze too many cattle, or land on very steep slopes has been ploughed. The streams are red with soil; a friend of mine once said that Basutoland is bleeding to death. Agricultural agents are now showing the Basutos how to conserve their soil."

Basutoland imports · We wonder what the Basutos buy from outside their country. "Mainly, they need manufactured goods for sale in the country stores," Mr. Van Rooyen tells us, "goods such as kerosene lamps and cooking pots, metal boxes for storing things, and blankets. They wear brightly coloured blankets—purple or orange or red or pink. You can guess the reason for the blankets. It is cold here in winter, and chilly at night even in summer."

Life in Basutoland · Basutoland seems so interesting that we are sorry we are not going to stop there. "If you come back to Africa, you should pay it a visit," Mr. Van Rooyen says. "The Basutos live in round huts, with thatched roofs of grass and walls bright red from the clay they plaster over the stones. There is usually a corral for the cattle, and a garden with mealies growing in it, as well as fields of wheat or sorghum. In the villages are small workshops for making household goods, and in the capital town there is a very good printing shop built by the Christian missionaries. There Basuto printers set up type for the local newspaper and also print school books. Only white men are allowed to do skilled work in the Union of South Africa, but here in Basutoland the natives are free to do everything."

Over the mountains · As Mr. Van Rooyen has been speaking, the plane has carried us over the highest ridges of the great tangle of mountains and steep valleys—the Drakensberg Range—and we begin to descend on the eastern side. Soon we are over the foothills and then, in the far distance, we can see level land. It is a clear day. On the skyline we can just make out the shore of the Indian Ocean. Below us the land is green with trees and crops, for this is the side of South Africa that gets rain from the trade winds blowing inland. Soon the plane drops down over the wooded hills around Pietermaritzburg, circles the airport, and lands.

A MAP EXERCISE · On the map on page 237, find the mouth of the Orange River. It is on the Atlantic coast, where Cape of Good Hope Province and South-West Africa meet. Follow the river upstream (inland) to the place where it is joined by the Vaal River, then continue along the Orange River to the border of Basutoland, and so on to the farthest point you can find on the river. It is high in the mountains. The source of the Orange River is only 100 miles from Durban on the Indian Ocean. Why does the river flow for 1,300 miles to the westward to enter the sea in the Atlantic? Which river in South America starts near one ocean and flows almost the whole way across the continent to empty into the ocean on the other side?

TRAVEL IN BASUTOLAND · Basutos travel about their country on ponies or on foot. Why do they not use automobiles, buses, or railways?

THE SUBTROPICAL SEACOAST

Pietermaritzburg · Pietermaritzburg, usually called Maritzburg for short, is an educational centre, with high schools, technical schools, a college for training teachers, and the University of Natal. It is also the government centre for Natal Province.

Although Pietermaritzburg is much lower than Basutoland, it is still 2,200 feet above sea level. This makes it cooler than the coastal regions in summer and rather chilly in winter.

Driving southward · Mr. Van Rooyen has arranged for us to drive from the city southward into a corner of Cape Province and then back along the seacoast to Durban. As

we set out, we see the ranges of the Drakensberg Mountains far off to the west. Mr. Van Rooyen tells us that the name Drakensberg is Afrikaans and means "Dragon Mountain." The native Zulu name for the mountains is "The Spearheads," because the peaks are so sharp and jagged.

From Maritzburg the land slopes down toward the ocean. Where it is not more than 1,000 feet above sea level, it is used for growing sugar cane, which gives a bright green colour to the countryside. This crop attracted most of the first settlers to the region, and it is still the most important crop there. We remember the northern part of New South Wales, southern Queensland, and eastern Brazil, where the crops were much the same. Here, there are also dairy cattle, beef cattle, some hogs and chickens, corn, and fruit on most of the large farms. The white settlers here came originally from Britain. Most of the work in the fields is done by Bantus and East Indians.

A native reservation · Soon the road begins to climb rapidly, as we cross from Natal back into Cape Province. The large farms have disappeared. The land is now grass-covered and stretches off into the distance like rolling prairie. The only homes we see are small groups of round native huts, sometimes forming a small village, with a store, a little school, and perhaps a post office in a small shack. We are now in the Transkei, the largest native reservation in South Africa. More than a million people live in it. Most of them keep a few cattle and grow their food in small gardens. There are no white men's farms in the reserve.

Beside the Indian Ocean · We turn towards the seacoast, to take the road that will lead us beside the Indian Ocean to Durban. "If we had followed that other road," says Mr. Van Rooyen, pointing south, "we would in time have reached East London, an important seaport. Not far from there is Fort Hare, a university college for Africans. There they can study to be teachers, scientists, or doctors. There is also an agricultural college to which Africans come from as far north as Rhodesia in order to study how to become better farmers. Following that road still further would bring you to Port Elizabeth, which is growing rapidly as a trading and manufacturing city. It is the South African centre for making automobiles."



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A valley in the Drakensberg Mountains.

For the next hundred miles we drive northward beside sandy beaches, where the waves of the Indian Ocean break in white foam. There are many small villages and a few larger towns. This coast is very popular with holiday-makers, especially those who find the winters on the high veld too cold for them.

At last we see the grain elevators and coaling cranes of Durban. When we reach the city we turn in from the shore to our hotel.

Durban · Durban is the largest city in Natal. The main streets are much like our own in Canada, with buses and cars, large office buildings, department stores, and so on.

The people we see in the streets are not like those in our Canadian cities. Only about half of them are what is called "Euro-



South African Government Information Office, N. Y.

We followed this highway along the busy waterfront into Durban.

pean" in South Africa. The remainder are more or less dark-skinned, and include Zulus and other native Africans, and people from India. We are told that there are about 300,000 Indians in Natal, and about the same number of Europeans, most of whom are of British origin.

The harbour of Durban is very large and is the best harbour in the country. More and more ships come to it every year. We see a Canadian steamer from Montreal waiting to pick up a cargo of sugar. One of the exports is coal, which is mined about 200 miles inland. As there is not very much coal in the southern hemisphere, Natal coal is very important.

The climate of the Durban area is quite different from that of the other parts of South Africa we have visited. Cape Town, for example, has a long, sunny, dry summer; the rains come in winter when it is cool. Here at Durban, rain may fall at any time of the year, although most of it comes in summer. The weather is never really cool on the coast. Natal has a subtropical climate, which is good for growing many kinds of fruit, sugar cane, and even tea.

SOME QUESTIONS TO ANSWER · **1.** Why is it cooler in Maritzburg than in Durban?

2. In some Natal city parks there are cinnamon trees. What is cinnamon used for in Canada?

3. In which province is the Transkei native reserve?

4. Why do Africans travel long distances to reach Fort Hare?

5. What attracts people from the high veld cities to the Natal coast in winter?

A LIST TO MAKE · List the farm products mentioned on the drive from Maritzburg to Durban.

EXPLAIN THE REASON · Canada sends wheat to South Africa and buys sugar from there. Explain the reason for this exchange.

ON TO JOHANNESBURG

Flight across Zululand · Soon the time comes to leave Durban on our 300-mile flight to Johannesburg. We take off and head north over Zululand, the part of Natal north of the Tugela River. This is where most of South Africa's 250,000 Zulus have their homes. Below us we see rounded, grass-covered hills, and patches of green trees in some of the valleys. It is a land suitable for raising cattle. Here and there, on the crest of a hill, is a group of beehive-shaped huts. This is a Zulu kraal.

Among the Zulus, Mr. Van Rooyen tells us, the richest man is the one who has the most cattle. When a Zulu wishes to marry, he must pay the bride's father ten or fifteen cattle, as well as such things as cooking pots, blankets, and food. To get the money to buy such goods the young man usually has to work in the city or on some white man's farm, or even go far away for a time to work in the mines.

When Mr. Van Rooyen was a boy, his grandfather told him stories about the big wars between the Zulus and the white set-

tlers. The *impis*, or groups of Zulu soldiers, used large shields and throwing spears, called *assegais*. The Zulus were the strongest and most warlike of all the Bantu fighters, and even today some of them do not like to settle down to work on the farm.

Into the Transvaal · While Mr. Van Rooyen has been telling us about the Zulus, we have crossed the border of Natal, and are now flying over the fourth and last South African province—the Transvaal. We have left the coastal lowlands, and are above the high veld. In time we cross the Vaal River and continue towards the city the Bantus call "Goldieburg"—Johannesburg, the largest city in South Africa. Soon we see a range of hills ahead, and then, near the centre of them, smaller white hills made of sand and rock-waste from the gold mines. We drop down to the airfield near the edge of the city.



By Ewing Galloway, N.Y.

A Zulu woman inside a beehive-shaped hut. The low doorway is easily blocked to keep out wild animals.

Rand Goldfields

Johannesburg—golden city · "Johannesburg," Mr. Van Rooyen tells us, "is very large. It has a population of about 800,000, and is the industrial and trading centre of South Africa. In some ways it is like any large city. There are big office buildings, fine stores, parks, pleasant houses, streetcars, and a great deal of traffic in the streets. But there is something special about the city too —most of what you see has been built with money made from gold-mining. Today we are going to visit one of the mining companies, where an engineer will explain how the mining is done."

Gold-mining · At the mine, about thirty miles out of the city, the engineer shows us a large map of the Johannesburg region.

"Before gold was discovered here in 1886, this whole area was rather dry prairie," he tells us. "There were a few sheep farmers, but most of the country was left to the antelopes, lions, and other wild animals. There is a high ridge of land that runs east and west for about seventy miles. The ridge is named Witwatersrand—the ridge of white waters—because of the many streams that run down its edge. We usually call it 'the Rand.' As soon as gold was found in the rocks of that ridge, a gold rush started. Since then, the Rand has produced about two-fifths of all the gold mined in the world.

"The gold is mined by driving deep shafts into the hard rock of the ridge. The temperature rises as the shafts go deeper, until it is at times over 90°. That is very hot for men doing hard work. Some of the mines are nearly two miles deep, more than 10,000

Johannesburg is a big, modern city, the centre of South Africa's gold-mining industry.

South African Government Information Office, N. Y.





Jorgehsen from Three Lions

Mining gold deep in the earth.

feet. This mine is air-conditioned, and is modern in every way."

We then put on overalls and helmets and walk to the top of the shaft. "You won't see any gold, I'm afraid," our guide tells us, "but you will see plenty of rock and mud. The gold-bearing rock forms a *vein*, or layer, about three feet thick. We blast it out and haul it to the surface. There it is crushed to a fine powder and then treated with chemicals to get the gold and other metals out of it. We then melt the gold and mould it into bricks, worth about $25,000 each. We also get smaller amounts of other metals. The waste rock and sand make the white hills you have seen all about the countryside."

We enter a cage, or steel elevator, and in less than three minutes we are at the bottom, nearly two miles below the surface. There is water on the tunnel floor and more on the walls. The engineer tells us that the water is needed to lay the dust, so that the miners will not hurt their lungs by breathing it.

The high ceiling and large tunnels make the mine seem like an underground city. Electric locomotives pull cars of ore past us as we walk along. We see Africans in smaller side tunnels, drilling holes for explosives. Then our guide takes us along another tunnel back to the shaft, and the cage carries us swiftly to the surface.

At the top, we are shown a large hospital, built to care for the miners. We also see the dining rooms where the men have their meals, and the large kitchens nearby.

"Most of the hard work in the mines is done by Bantus," the engineer tells us. "There are about 350,000 of them working in the different mines of the region, along with about 45,000 white men who are the engineers, foremen, managers, and office workers.

"The Africans come from all over southern Africa to work in the mines. They are of many tribes and speak many different languages. Most are from Basutoland and the Transkei and from the Portuguese colony of Mozambique. When they have worked for about a year, we send them home. Some return later on to work again. While they are here they live in large barracks, which

A gold mine on the flat, grassy veld near Johannesburg. Notice the mound of waste rock and sand to the left.

Jorgehsen from Three Lions



need to be heated because this part of Africa is quite cold in winter."

Our guide then tells us how important gold is to South Africa. Nearly half the people of South Africa earn their living from gold-mining in one way or another, and the country leads the world in gold production. Canada is the second most important gold-mining country.

Because uranium has been found in the waste rock from gold mines, South Africa is today a leading source of this metal, which is used to produce atomic energy.

Back to Johannesburg · On our way back to the city we drive through the poorer parts of Johannesburg. More than a hundred thousand Bantus live on the edge of the city in wooden shacks or old tents. They are very poor, and there are not yet enough proper houses for them.

SOME QUESTIONS TO ANSWER · 1. What is the meaning of Witwatersrand? In what language is it?

2. Why are some gold mines very wet?

3. Why are some gold mines air-conditioned?

4. In the gold mines of South Africa, there are more than eight native workmen for every one European. Where do all these native workmen come from?

WRITE A LETTER · Write a letter to a friend, describing your visit to the mine near Johannesburg. Tell about the appearance of the mine, how the ore is taken from the rock, how the gold is obtained from the ore, and the ways in which the workmen are looked after.

SOMETHING TO FIND OUT · Zulu impis fought many battles more than a hundred years ago. Whom did they fight and why?

BY CAR TO PRETORIA

A fine modern highway leads from Johannesburg northward for thirty-five miles to Pretoria. The land drops about a thousand feet between the two cities.



South African Government Information Office, N. Y.

Voortrekker monument at Pretoria. Who were the Voortrekkers?

Pretoria · At Pretoria, we visit the beautiful Union Building, which contains the government offices. There are some fine homes in the city for the Governor General, the Prime Minister, and the representatives of foreign governments. Many miles of streets are lined with jacaranda trees, which have beautiful blue flowers when they bloom in October.

Across the valley from the Union Building we see the steel works, built to use Transvaal coal and iron. A second and larger steel works was recently completed at Vereeniging, about forty miles south of Johannesburg. These and other modern industries are changing the veld rapidly. South Africa was at one time a farming and stock-raising land, but some parts of it are now industrialized. Coal is usually used to manufacture power, because hydroelectric power is scarce.

CAN YOU ANSWER THESE QUESTIONS? 1. Canada's new industries have plenty of cheap hydroelectric power, but many of them must import coal. Is this true of South African industries?

2. Water supply for large cities and industries is not easily found in the Transvaal and the Orange Free State. Why is this so?

3. Each January many government officials travel 1,000 miles from Pretoria to Cape Town for the meeting of Parliament. Why is this necessary?



South African Government Information Office, N. Y.

A bend in the road in Kruger National Park may bring us face to face with lions.



South African Government Information Office, N. Y.

At another turn in the road, we may find our way blocked by a huge elephant.

ON TO KRUGER NATIONAL PARK

Through eastern Transvaal · Mr. Van Rooyen invites us to join a group of his friends who are driving to the Kruger National Park, about 200 miles east of Pretoria. The journey will take us through eastern Transvaal and close to the border of Mozambique.

We drive out of Pretoria along an excellent highway, and pass Witbank, where about two-thirds of South African coal is mined. The road continues across the high veld, about a mile above sea level, and then drops steeply to the lowlands. We spend the night at a small town not far from Swaziland, a British protectorate.

The next morning we drive past an asbestos factory, which uses rock carried in buckets on a cable for more than ten miles, from high in the mountains near Swaziland. Still further along, we drive through irrigated farmland, used for growing fruit and vegetables for the big cities. There are miles of orange groves, and cotton is also an important crop. Some land is planted to forest. We recognize one of the trees as being the blue gum of Australia, which grows so quickly here, a local forester tells us, that trees reach 120 feet in height in twenty years. As we are now no longer on the high veld, but nearer sea level, the weather is warmer and more moist. Malaria makes this lower land unhealthy.

Kruger National Park · "This park is the biggest zoo in the world," Mr. Van Rooyen tells us. "There are hundreds of thousands of animals of various kinds in it, including several hundred lions. There are no cages for the animals. They do as they please and live a natural life, safe from being hunted by men. There are no rules for the animals, but there are some for visitors. We must not get out of the car; we must drive slowly, to see what is going on; and we must not shoot at the animals. The rule is 'Try shouting before shooting.' At night we shall stay in special camps, protected by strong fences. Remember the rules—stay in the car, and don't try to pet the lions!"

A letter home · The park gives us a lot to tell about in our letters. Here is John's letter.

Dear Dad,

We are spending the night at a camp called Skukuza, one of about ten in the park. I

am going to sleep in a tent tonight. Some of the others are in small huts with thatched roofs. We have to cook all our own meals in the open. It is safe here, because there is a very high fence to keep the wild animals out.

I have made a list of the animals we have seen. It includes lions, giraffes, zebras, elephants, monkeys, crocodiles, hippopotamus, klipspringers, and sable antelopes. We also heard a jackal last night. We plan to go out early tomorrow morning to try to see a cheetah. We also want to see a leopard, a warthog, and a baboon.

One of the rangers said there are more than 340 kinds of birds in the park. The biggest bird I have ever seen is a hawk here, with wings about seven feet across.

I wish we could see the whole park, but it is about 250 miles long and nearly forty miles wide, and it would take too long to see all of it. When we leave the park we shall also leave the Union of South Africa to go to Southern Rhodesia. Mr. Van Rooyen is going back to Cape Town while we go northward. He is a wonderful guide. We wish he could come all the way with us.

With love,
John

WHERE ARE THESE PLACES? Locate on the map on page 222 these places: Johannesburg, Pretoria, Swaziland, Kruger National Park, Mozambique, Lourenço Marques.

MAKE A LIST · Make a list of the animals seen in the park. Which of them are shown in pictures in this book? Try to find pictures of others.

LAST TALK ABOUT SOUTH AFRICA

We are seated under a shady tree in Kruger National Park. This is our last day in South Africa.

"You have seen much of South Africa," Mr. Van Rooyen says, "and you have learned a great deal about my country. As you may not remember everything, I shall repeat some of the most important things."

A large country · Mr. Van Rooyen reminds us that the Union of South Africa is a large country. From the southern tip, near Cape Town, to the Limpopo River, not very far north of Kruger Park, it is about 1,300 miles in a straight line. That is about as far as from Palm Beach in Florida northward to Montreal. In area the country is about as big as Saskatchewan and Alberta together. The map on page 222 shows how that large area is split up among the different provinces of the Union. Cape Province is the largest and Natal the smallest.

The South Africans · There are about 12,500-000 South Africans, of many different races, and the population is increasing by about a million every five years. It is growing most rapidly around Johannesburg. In the Rand gold-mining area there are about the same number of people as live in Montreal and its neighbouring towns. The next city in size is Cape Town, and it is followed by Durban and Pretoria. Although South Africa has many cities and towns, it is still mainly a farming land. Many South Africans live in small villages or on lonely farms far from one another.

The climate · Because so many South Africans are farmers, climate is very important to them; they depend on rainfall and warmth to produce crops. The climate is, of course, very different from that in Canada. It is more like that in parts of Australia and South America.

Almost nine-tenths of the country has its rainfall in the summer, which is, of course, the hotter season. In the far south, near Cape Town, however, rain falls in winter and the summer is dry. The coastal area, from Durban to Port Elizabeth, gets rain all year round. The rest of the country has about four months of the year without rain,



South African Government Information Office, N. Y.

Water from the lake behind this dam irrigates a large area of dry land in the Transvaal.

and farmers are very often short of water. The high veld becomes very dry indeed. It has enough rain to produce dry grasslands suitable for sheep-raising, but usually there is not enough rain for crops. The far west of the country is almost a desert.

Most of South Africa is more than a mile above sea level and this gives it cool nights in summer and sometimes quite cold weather in winter, though it is never, of course, so cold as parts of Canada are in winter. South Africa is famous for its sunshine. This is because the air is so often dry that clouds are not formed.

Conservation of water and soil · Because much of South Africa is short of water, the people must spend much money to build irrigation dams and canals. One of the largest of these irrigation schemes is on the upper part of the Orange River.

They must practise soil conservation too. Mr. Van Rooyen reminds us of the red splashes of colour we saw from the plane over Basutoland. The same destruction of the soil has happened in many other places. The people now try to use the dry lands for sheep or cattle, and not for crops. One result of this has been that South Africa has millions of sheep on its grasslands and is today the fourth largest producer of wool in the world.

Farming · Where there is enough rainfall, or where water for irrigation can be obtained, much corn is grown. Next in importance are wheat, dairy products, wool, and fruits. Then come other products, such as vegetables, tobacco, and grapes for wine. As the population is growing, more food is needed. This requires more water, the use of additional land, and extra help.

Lumber · Because so much of South Africa is dry, there are no large forests, such as there are in Canada or in the wet parts of Central Africa. Only a very small part of the country is wooded, and the trees that do grow must be cared for. On the southeast coast there are subtropical trees, such as palms. Farther inland, on what is called the "bush veld," there are acacias and other trees that can live in drier conditions. In the far south, where there is enough rain, there are trees suitable for lumber and for making furniture. Some of them have strange names—stink wood, sneeze wood, wagon wood, assegai wood, and iron wood.

Mining · The most important South African occupation is mining, and the most valuable products of the mines are gold and diamonds, uranium, iron, coal, and asbestos. Copper is also mined, and two other important metals, manganese and chromium.

Trading · Mr. Van Rooyen tells us a little about South Africa's overseas trade, for the goods South Africans send abroad through their seaports help to pay for the things they cannot produce themselves. Of the goods they send out, their exports, gold is the most important. After that in importance come wool and then diamonds. Mr. Van Rooyen mentions only a few of the other goods which are not so important—coal, hides, copper, and sugar. Can you remember which part of South Africa produces each of these?

What does South Africa buy in return from other lands? The biggest items are food,

oil, automobiles, machinery, and clothing made from cotton and wool. Although some automobiles are made in the country, many are still imported.

Transportation · Overseas trade needs seaports where the ships can load and unload cargoes. The two largest ports in South Africa are Durban and Cape Town, and there are several other large ports—East London, Port Elizabeth, and two which are not in the Union, Walvis Bay in South-West Africa, and Lourenço Marques, in Portuguese Mozambique. About half of the imports and exports of the Johannesburg area pass through Lourenço Marques. Because South Africa is so large and lacks railways between some cities, many passengers travel along the coast by ocean liner, and some freight also goes by ship. This is known as coastal shipping.

Some of South Africa's railways are very good. The longest run is from Cape Town, through Johannesburg and Pretoria, to the boundary of Southern Rhodesia. Another long line runs from East London on the Indian Ocean right across the country and through the Kalahari Desert to the Atlantic. Most of the railways are narrow gauge, with tracks three feet six inches apart.

Aeroplanes are very important for travel within the Union. The larger cities are also connected by airlines with the rest of the world. Small planes are good for travelling from place to place on the high veld, but there are still plenty of ox wagons in use in the country. They are very large, about the size of a small bus, and are pulled by a "span" of sixteen oxen.

Government · Mr. Van Rooyen ends his talk by telling us about the government of South Africa. "We South Africans have the same Queen as have Canada and Great Britain," he says, "and we are proud to be members of the Commonwealth. We are also members of the United Nations. Government is not easy in this country of many races and languages. We have not yet found the best way for people of different races to live together, but we shall try until we do."



South African Government Information Office, N. Y.

Train, highway, and river take the easiest way through mountainous countryside.

SOME QUESTIONS TO ANSWER · **1.** A Canadian is leaving Montreal in January to fly to Cape Town. What kind of weather should he expect?

2. What part of Australia has a climate like that of Durban? What part of South America has a climate like that of Cape Town?

3. South Africa exports much wool. In which region are there the most sheep? Why?

4. South Africa produces some oil from coal but must import the rest of the oil it needs. Which of these lands also import oil: New Zealand, Brazil, Australia, Colombia, Chile?

5. Which of the southern lands has several different railway gauges? Why is this a disadvantage? Could a Canadian railway car run on South African tracks?

SOUTH AFRICAN FRUIT · Many fruits are grown in South Africa. They are of four kinds: (*a*) citrus fruits, including oranges, lemons, grapefruit; (*b*) grapes; (*c*) apples, pears, and peaches; and (*d*) tropical fruits such as bananas, pineapples, and mangoes. In which parts of South Africa can the different kinds of fruit be grown?

EXPORTING COAL · South Africa produces more coal than it needs, and so has some for export.

Make a list of the other southern lands which mine enough coal for their own use.

WOOD FOR INDUSTRY · Suggest ways in which wood is needed in these industries: coal-mining, shipping fresh fruit, railways, and shipping.

SOMETHING TO FIND OUT · Each year two or three million skins of karacul sheep are exported from South-West Africa. Can you find out what the skins are used for?

SOME THINGS TO DO · **1.** Make a list of the South African cities visited on the tour. Beside the name of each, write a fact about its weather.

2. List three items that you might find in a cargo ship going from Montreal to Durban.

BRITISH CENTRAL AFRICA

SOUTHERN RHODESIA

Across the border · After driving from Kruger National Park to the border of Rhodesia, we say good-bye to Mr. Van Rooyen at Beit Bridge, which carries the road and railway over the Limpopo River. At the Southern Rhodesia customs office arrangements are made for us to fly to the places we wish to see, and Mr. Robertson, one of the officials, offers to be our guide.

The country and its people · "British Central Africa is the name often used for a group of three British territories—Southern Rhodesia, Northern Rhodesia, and Nyasaland," Mr. Robertson tells us. "The three separate governments work together closely in matters of production, trade, and transportation.

"Southern Rhodesia is different in many ways from the Union of South Africa to the south. The settlers here are mainly from the British Isles. Our cities are rather new, and much of the country is being used for large farms and plantations. Africans own land only in reservations. We are a self-governing territory. In Northern Rhodesia and Nyasaland there are not many white settlers. In those two territories, most of the land is still owned by Africans.

"There are about 6,000,000 people in British Central Africa, of whom about one in every thirty is a European. Although the country reaches from the tropic of Capricorn almost to the equator, the climate is fairly cool because of the high altitude."

Flight to Bulawayo

Swampy lowlands · Our plane takes off, and we find it good to get away from the Limpopo River, which flows through swampy lowlands where there are many mosquitoes and biting flies and where malaria is a common disease.

Among the Matopos · Before long, the country below us rises steadily. At first it is everywhere covered by forest. Then patches of rock appear through the trees, and finally much of the land is bare granite rock, with very large boulders piled up on one another. The native name, Matopo, means "bald-headed hills." The pilot drops the plane down so that we can see the ground closely, for here, on a high hill, Cecil Rhodes was buried.

Bulawayo · Some miles to the north we sight Bulawayo, spread out on the flat veld like a Canadian prairie town. Seventy years ago, this was the site of a native kraal. Today it has broad, tree-lined, paved streets, which were planned by Cecil Rhodes to be wide enough to allow a team of sixteen oxen hauling a wagon to turn around. They remind us of the wide main streets of Winnipeg. There are some large houses, good schools,

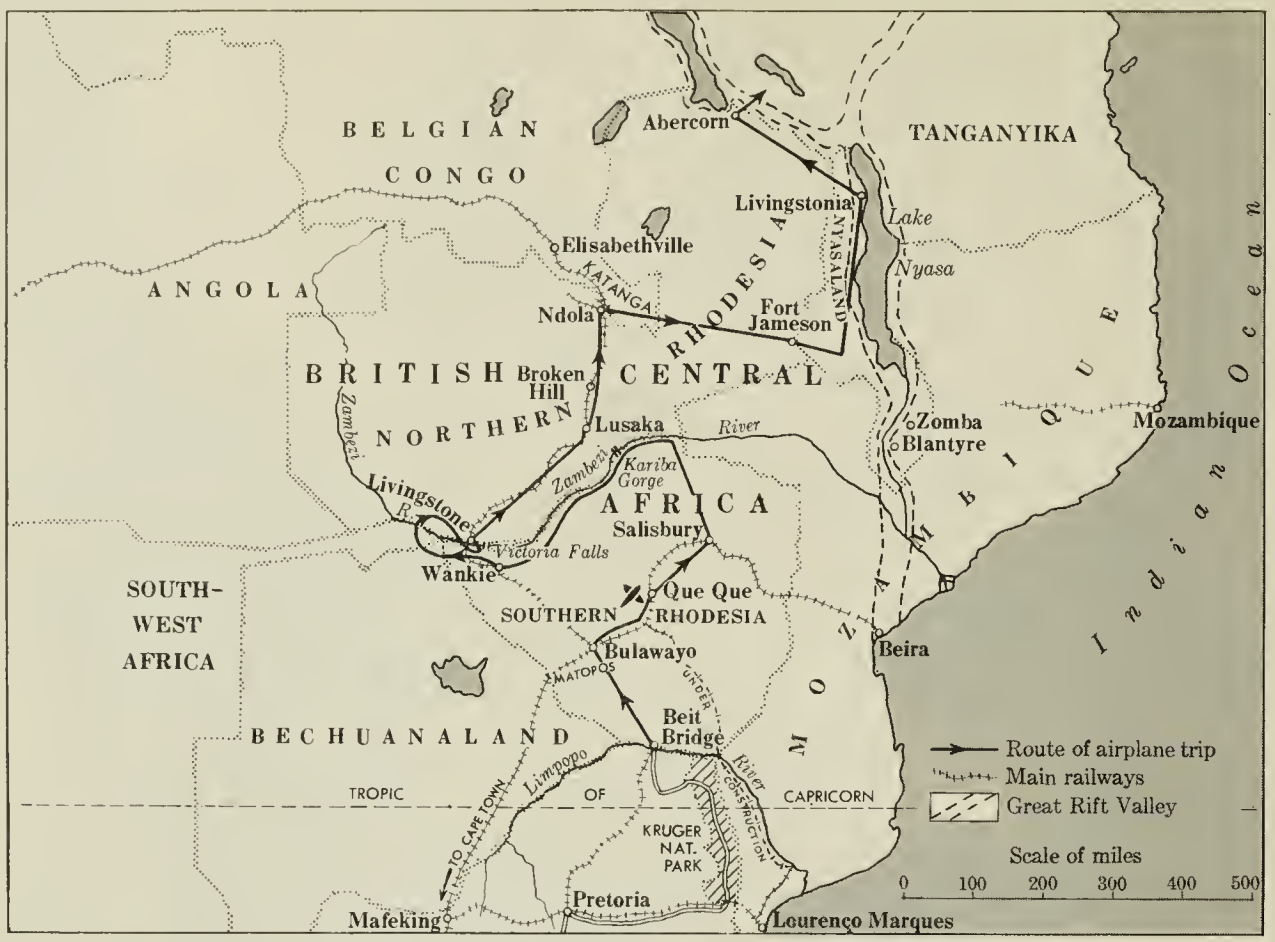


The southern part of Africa.

many smaller houses, and a number of factories. Just outside the town we see a packing plant where thousands of cattle from surrounding farms are processed into canned beef and beef extract, to be sold in the mining towns of the north or in England.

A visit to a farm near Bulawayo · After sightseeing around Bulawayo, we drive a few miles out of town to visit one of the local farms. The annual rainfall in this part of Africa is enough for cattle-raising, but usually not enough for crops. The rain falls in summer, and water is often very hard to get in the dry season.

The Scottish owner of the farm is glad to tell us about his work. He has 8,000 acres of land, most of which is used for grazing. About 200 acres—a little more than a Canadian prairie quarter section—is cultivated and produces corn and other stock feed. Because the farm is near the city, he has a good market there for the milk supplied by his cows. The beef is either shipped to the packing plant or sent to mining towns in



A map of our trip through British Central Africa.

other parts of the country. He sells as much meat as he can in the Rhodesias, because the farm is far from the seacoast and railway costs are high to send meat to England.

RHODESIAN RAILWAYS · Find the main railway lines on the map on this page. Bulawayo is an important railway junction. Locate the main line from Cape Town to Salisbury. Follow the railway line from Salisbury eastward down to the coast of the Indian Ocean at Beira. Along this line goes much of the overseas freight of Southern Rhodesia. In what country is the port of Beira? Another railway line from Bulawayo goes the other way, towards the northwest to Victoria Falls on the Zambezi. Follow this route and continue along it into Northern Rhodesia and on to the mines at Broken Hill. It is planned to build a new line from Broken Hill through British territory to the sea. Find on the map a route it could follow.

On to Salisbury

Mining country · Leaving Bulawayo, we fly north towards Salisbury. After flying more than an hour above the veld, we see a group of mines where, Mr. Robertson tells us, gold, silver, and chromium are produced. There is, he says, much new mining in this area. It helps to bring in the money to build new towns, railways, and highways, and to make life better for the Africans.

A native reserve · Beyond the mine dumps we again cross tree-dotted grassland that we have seen so often before in Africa, with native villages scattered here and there. This is a reservation where only Africans may live. In the villages the white, grass-roofed huts are arranged in straight lines like streets, and there is usually also a larger hut which is the school. Presently we fly over a fairly large town where the map shows only the small dot for a village. "That is Que Que," our guide explains. "It was a village until iron ore was developed there and a modern steel works was built. Then homes were built for the workmen and engineers, and soon other small industries and stores were added to supply local needs. Now we have a busy new town."

Farmlands near Salisbury · As we approach Salisbury, our pilot flies lower over the fine farms that cover the countryside in all directions. Much of the land is the dark green colour of a forest, but actually we are looking down on thousands of acres of tobacco plants. The rainfall here is heavier than farther south, and crop-farming takes the place of cattle-raising.

Salisbury, capital city · Salisbury is a young, growing city. As capital of Southern Rhodesia, it has many government offices. It is also an important business centre, linked by railway with the coast of the Indian Ocean at Beira. Beira is so important to people living in Southern Rhodesia that the government is spending much money to improve it, although it is in a foreign country.

Selling tobacco to the world · After sight-seeing around Salisbury, Mr. Robertson takes us to a tobacco auction, where big bales of yellow leaves are arranged in rows so that buyers can examine them. Some of the buyers are from London, Montreal, New York, and Paris, as well as from South Africa. Mr. Robertson introduces us to two Canadian buyers. It seems to us a long way to come to buy tobacco, but they explain that they flew across the Atlantic to London and then here to Salisbury in a few days.

A visit to a Rhodesian tobacco farm · We are puzzled about the yellow colour of the tobacco leaves. Those we saw growing in the fields were green. We drive to a farm a few miles out of the city to find the reason. There we see the green tobacco leaves being collected from the fields and then "cured" in big, heated, brick buildings. It is this "curing" that turns them yellow. In other buildings, natives are sorting the leaves according to quality and are packing them in bales.

North to Victoria Falls

The mighty Zambezi River · As we fly northward from Salisbury, we cross a large lake, formed by damming a river. This lake supplies water all the year round for thousands of acres of citrus trees. We see these trees arranged neatly in rows, with the straight irrigation channels running between them. Nearby is a factory where orange and other fruit juices are canned.

We reach the Zambezi River and turn west to follow it upstream to Victoria Falls. For most of the way, the broad river has

A cattle farm in Southern Rhodesia.

British Information Services





"The Smoke that Thunders"—Victoria Falls, on the Zambezi River.

dense forests on both banks. Presently we come to the Kariba gorge, where engineers are planning to build one of the largest hydroelectric plants in the world. The power produced here will be used to pump water for irrigating thousands of acres of dry land, and to supply factories which will manufacture high-grade steel from local iron ores. Cheap electric power and machinery can make the life of people in this part of Africa easier and more pleasant.

Approaching Victoria Falls · After flying for almost another hour above the broad, forested valley, the pilot circles to the south until we reach the Bulawayo-to-Livingstone railway. We cross the waste dumps and buildings of Wankie, a coal-mining town, and then return to the Zambezi again where the river is a broad, smooth-flowing stream more than a mile wide. We see a few native fishing boats on the river.

When we are still more than twenty-five miles from Victoria Falls, which the Africans call "the Smoke that Thunders," we see the cloud of spray which rises 3,000 feet above the falling water. Just then, the pilot turns west, instead of going directly to the falls. "You young travellers would probably like to cross four countries in a few minutes, and we can do it not far from here." Then he swings the plane in a wide circle, and calls — "Southern Rhodesia — Bechuanaland — South-West Africa—Northern Rhodesia"— as we cross each in turn. "This is a corner of Africa where the four countries meet."

Victoria Falls · Then the plane drops low over the river and flies straight downstream towards the falls. As we approach the cloud of spray, suddenly the river disappears below us, to drop 340 feet—about two and a half times the height of Niagara. Looking back, we see that the deep, narrow gorge below the falls forms a zigzag pattern. This has been made as the water cuts its way back along giant cracks in the rocky ground. The falls are slowly being cut farther upstream, just as is happening at Niagara Falls.

SOME MAP EXERCISES · **1.** On the map on page 237, find the place where the four countries meet. South-West Africa has to point a 250-mile long and very narrow finger eastward in order to do it. Can you find the "finger" on the map?

2. Three territories are sharing in the plans for the power development at Kariba gorge. They are Southern Rhodesia, Northern Rhodesia, and Nyasaland. Locate them on the map on page 238 and explain why all three are interested in the Zambezi hydroelectric plan.

3. Locate the Zambezi River on the map on page 237. List the territories it touches between Livingstone, in Northern Rhodesia, and the Indian Ocean.

USING THE FALLS · There are now many industries on both sides of the river at Niagara Falls. Why have they been built there? Suggest what may be done some day to use the water which goes over Victoria Falls.

EXPORT GOODS · A list of Southern Rhodesian exports is headed by tobacco, and followed by gold, chromium, asbestos, coal, and hides. Read again pages 236 to 240, to find where these are produced. What goods would you expect Canada to sell to Southern Rhodesia?

NORTHERN RHODESIA

Livingstone · After flying over the falls, we land at Livingstone, in Northern Rhodesia. The town is named after David Livingstone, a famous Scottish missionary and explorer, who was the first European to see the Zambezi.

Into the African wilds · Our plane takes off from Livingstone airport, heading north towards Lusaka. Northern Rhodesia is a wild part of Africa, and farms of white settlers are few and far apart. Most white settlers live within about twenty miles, or a day's wagon journey, of the railway line. In the hot rainy season, ox-drawn wagons are often the only means of moving about because of the mud. There are some fine modern farms, especially around Lusaka and near the mining towns. These farms produce meat, grain, fruit, and vegetables needed by the thousands of working people who do not farm.

There are only about 22,000 white people in the whole colony. Most of them are farmers, government officials, teachers, doctors, or managers and engineers in the mines. There are about 1,500,000 native Africans, most of whom still live in their villages far away from the white settlements. Some work on farms or in mines.

Lusaka · At Lusaka, we find another modern airport. Although the town is the capital of a colony larger than Alberta, it is small. It has a wide main street, with stores and a few hotels, and, high on a hillside, the government buildings.

To the copper belt · Northern Rhodesia is best known as a copper-mining area. We set out from Lusaka to fly to the part of the colony near the Belgian Congo border, where most of the mining is carried on.

We pass over Broken Hill, where zinc and lead are mined, and continue towards Ndola.



British Information Services

A copper mine in Northern Rhodesia. Notice the shape of the homes for the African miners.

Presently the endless forest of small green trees is broken by clearings, where there are farms and local roads. Then we see ahead the buildings and tall chimneys of the copper smelters. Ndola is the centre of a rich copper belt, from which many millions of dollars' worth of metals are shipped each year. Although it is 700 miles from the nearest seaport, it pays to carry the copper and other metals all the way to Great Britain or the United States. Our map (page 238) shows how the metals from Ndola reach the coast. They go by way of Lusaka, Livingstone, Bulawayo, Salisbury, and so on to the Portuguese seaport of Beira, a total of about 1,500 miles. A new railway, which will be about 500 miles shorter, is being planned to run northward through British territory.

Because the mines must use large amounts of machinery, building materials, housing supplies, food, and the other things needed for the thousands of workers, factories are being built to manufacture them at Ndola.

Across Katanga · From Ndola, our route takes us out of British territory for the first time since we came to Africa. We fly eastward over a corner of the Belgian Congo, the most valuable part of that rich colony. This is the Katanga copper-mining region.

Back in Northern Rhodesia again, our plane lands at Fort Jameson.

A native village · We have seen so much of civilized Africa that Mr. Robertson thinks we may forget that most Africans still live far away from the big settlements. From Fort Jameson we drive across the veld to visit a native village.

The village is a large one, with about a thousand huts built in a circle and nearly a hundred cattle pens. The village is surrounded by a fence which has only one gate. The huts are made of wickerwork and are roofed with straw. In one corner of the village is the chief's house, a wooden building designed to look like those of European settlers.

The village has no schools, no doctors, no roads. The chief occupation is herding cattle, and the richest man is the one who has the most cattle. Food is chiefly milk, butter, meat, and corn.

Although most of the villagers are away tending their herds, we see some women grinding corn into flour. Other women carry heavy baskets or pots on their heads. A few men are thatching the roof of a new hut. Nearby a small boy is kneeling down catching ants to eat. Mr. Robertson smiles at this and says, "At the mine store at Ndola there are ants and caterpillars for sale. Africans in this part of the country like them very much."

NYASALAND

The long, narrow colony of Nyasaland has few valuable mines to pay for good roads, fine buildings, or modern schools. Most of its people live either by growing crops of corn or by fishing. Britain is trying to make life better for Africans here by teaching them to be better farmers. We land at a small airport near an agricultural station, where the director answers our questions about Nyasaland.

Making better farmers · "Here in Nyasaland," the director says, "we produce tobacco, tea, and cotton for export, and we grow all the food needed in the colony except sugar. Soon we shall grow enough of that too.

"There are not many Europeans here—about 2,000 at the most—but there are a million and a half Africans. This country belongs to the Africans. At this station we teach them not to damage the soil, and show them how to grow crops that will bring them more money from abroad. One of these new crops is the tung tree, which gives oil that is valuable for varnishes.

"We still have much to learn about Nyasaland. New maps have just been made, using air photographs. Our geologists are examining the rocks, searching for minerals, and other scientists are trying to get rid of the tsetse fly, which carries the disease sleeping sickness, and the mosquitoes that carry malaria. There is a plan to build a dam where Lake Nyasa drains out into a tributary of the Zambezi. It should give us cheap electric power, which will make a difference to life for all of us.

"Most of all, we want to give the Africans enough schooling so that they can run their own country. They are a fine, hard-working people and very intelligent. In time they should be able to do most of the skilled work themselves.

"A few Europeans live in the southern part of the colony, on the high land around Blantyre. Zomba, also in the highlands, is the capital of the colony."

A rift valley lake · We thank the director and once more fly northward, following the western edge of a long lake. There are many small fishing villages along the shore, each with boats drawn up on the beach. This large lake is only about twenty-five miles

wide, but the map shows that it is 360 miles long, as far as from Toronto to Montreal. Not far back from the shore the land rises steeply and in places there are high mountains.

Mr. Robertson tells us that we are flying over part of the longest rift valley in the world. It runs northward for many hundreds of miles. In some places, such as here, it is flooded and forms a lake; in others, it is just a broad, deep valley; while in some parts volcanoes have been formed by lava pushed up through cracks in the earth's surface.

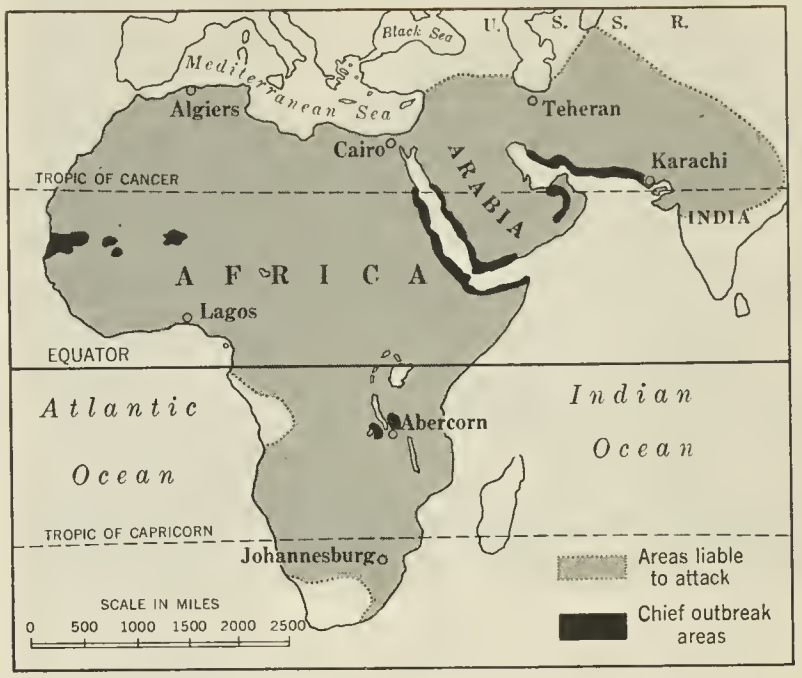
Livingstonia · Our next landing is at Livingstonia, a settlement on a low plateau above the lake. There we visit a fine school and a large hospital, and see native homes, stores, and a garage. This is a Scottish mission, built in memory of Dr. Livingstone, who discovered Lake Nyasa.

FIGHT AGAINST LOCUSTS

On to Abercorn · After leaving Livingstonia, our plane climbs steeply to more than 6,000 feet above the lake, to fly over the high ranges that form the edge of the rift valley. Then we cross the veld towards our last stop in British Central Africa. This is Abercorn, in Northern Rhodesia, a small town a mile above sea level. We have come here to learn about a campaign to kill locusts.

Locusts · Locusts swarm across the countryside in this part of the world in some years and eat everything they can find, so that the crops are ruined and the people go hungry. At Abercorn we meet the English leader of a team of scientists from many countries, working to rid the land of locusts. He explains what they are trying to do.

"Many countries work together in this," he tells us, "because locusts don't stop when they come to a border. They move over very long distances, and we have to do the same.



The regions plagued by locusts.

Abercorn is one of our research stations. Our head office is in Cairo, Egypt, but we travel over a huge area, from the south of Russia and India to South Africa.

"Our campaign is run just like a war. We have portable radios, aeroplanes, trucks, cars, jeeps, motorcycles, and boats. First we must find the places where the locust eggs are laid and the caterpillars hatch. Poisoned bait is then sent out by truck or plane, or sometimes we spray the ground from aeroplanes. We must study the weather carefully, because sunshine and winds decide how the locusts will move. The work is very important, for if crops are destroyed by locusts, thousands of people may die from starvation."

LOOKING BACK AT BRITISH CENTRAL AFRICA

"Tomorrow you will go on north into British East Africa," Mr. Robertson tells us that night at dinner. "Tonight I want to remind you of a few of the important things about British Central Africa.

"You entered Southern Rhodesia where you left the Union of South Africa, at the bridge across the Limpopo River. That was



British Information Services

The government is building water holes like this in Nyasaland to conserve water for stock.

in about latitude 22° S. not far from the tropic of Capricorn. We are now about 9° S., or 600 miles from the equator. Most people who have never been here think that this part of Africa is always very hot. You know that it is not. Down at the seacoast, towns, such as Beira in Mozambique, are sometimes uncomfortably hot and damp. There they grow bananas, coconut palms, sugar, and rice. But up here on the plateau we grow coffee, tobacco, corn, vegetables, flowers, and bushes that make it look like Victoria in British Columbia.

"The average highest temperature here in Abercorn is 79° F., which is like a warm July day in Toronto. The average lowest temperature here is 58°. Our rain comes between November and May and totals about forty inches—about the same amount as Victoria has in a year. But it is dry here in the cool season. These facts tell why Europeans come to live in Central and East Africa.

"Our crops are mainly tobacco, corn, and cotton. With irrigation we grow fine citrus fruits, and if we have enough water we can produce all the vegetables we need. Cattle are also very important, especially farther south. You won't see many cattle or horses north of here. The reason is the tsetse fly, about which you will soon hear a lot.

"Minerals, especially copper, are still the main source of our country's wealth. They pay for many of the roads, towns, schools, and airports. The mines are also turning many native Africans into civilized people much like ourselves. They leave their villages to work in the mines. There they lead more healthy lives, get some education, and perhaps become skilled workmen. Their children go to school, and they don't go back to the old native ways.

"Two other things are changing this part of Africa. One is electricity, which can do the heavy work at the mines, light our homes and offices, run our trains, and even keep us cool by air-conditioning. The second is the aeroplane. We can never have good roads and railways to all parts of Africa, but we already have fine airports at the big towns, and even the villages have a field that can be used by small planes. Our flight over Central Africa has shown how the aeroplane has opened up the country."

MOZAMBIQUE—A NEIGHBOURING COLONY

During our trip through British Central Africa, we often heard about the neighbouring Portuguese colony, Mozambique. Mr. Robertson goes on to tell us about it.

"British Central Africa is cut off from direct contact with the Indian Ocean by Mozambique," he tells us, "and most imports and exports of the Rhodesias, Nyasaland, and also the Transvaal must pass through the Portuguese seaports, Lourenço Marques, Beira, and the city of Mozambique.

"The colony of Mozambique stretches along the coast for about 1,600 miles. Most of it is low-lying, hot, and moist. At one time the climate was dangerous, but modern cities, with good water supply, drainage, and

fine hospitals are being built, and life there is now far safer. About six million Africans live in the colony, along with about 65,000 Europeans and Indians.

"The chief crops grown for export are, as we should expect, sugar, cotton, copra, and nuts for vegetable oils. There is enough local coal to supply all the railways, and gold is also mined. Many natives of Mozambique leave the country to work in the Rand goldfields of South Africa, as there is not enough work for all in Mozambique."

CAN YOU EXPLAIN? Why is Portuguese Mozambique a rather unhealthy place for Europeans, while British Central Africa is more healthy?

WRITING ADVERTISEMENTS · Read these advertisements from a book about Central Africa:

(*a*) You must visit UMTALI, S. Rhodesia. Business, Industry, Sport. Fine schools and hospitals. Mountain scenery, forests, and sunshine.

(*b*) NYASALAND for African holidays. Good season for tourists May to October. Beautiful scenery, fishing, bathing. Cool, dry weather.

(*c*) NDOLA, rich in minerals, soils, and opportunity. Mining and farming. Railway centre.

Choose one of the following places and write an advertisement about it: Livingstone, Bulawayo, Salisbury, Blantyre, Abercorn. To find the facts, read again pages 236 to 245.

SOME MAP EXERCISES · On the maps on pages 237 and 238, find answers to these problems.

1. A crate of machinery is unloaded at Lourenço Marques, addressed to Bulawayo, Southern Rhodesia. Find how it can be delivered by railway, and name the countries and cities through which it will go.

2. Follow the railway lines from the seaports of Lourenço Marques, Beira, and Mozambique inland. Which port is used by Pretoria?

3. Can a traveller to Northern Rhodesia's copper belt at Ndola reach the west coast of Africa by train? (See the map on page 258.)

AN INTRODUCTION TO BRITISH EAST AFRICA

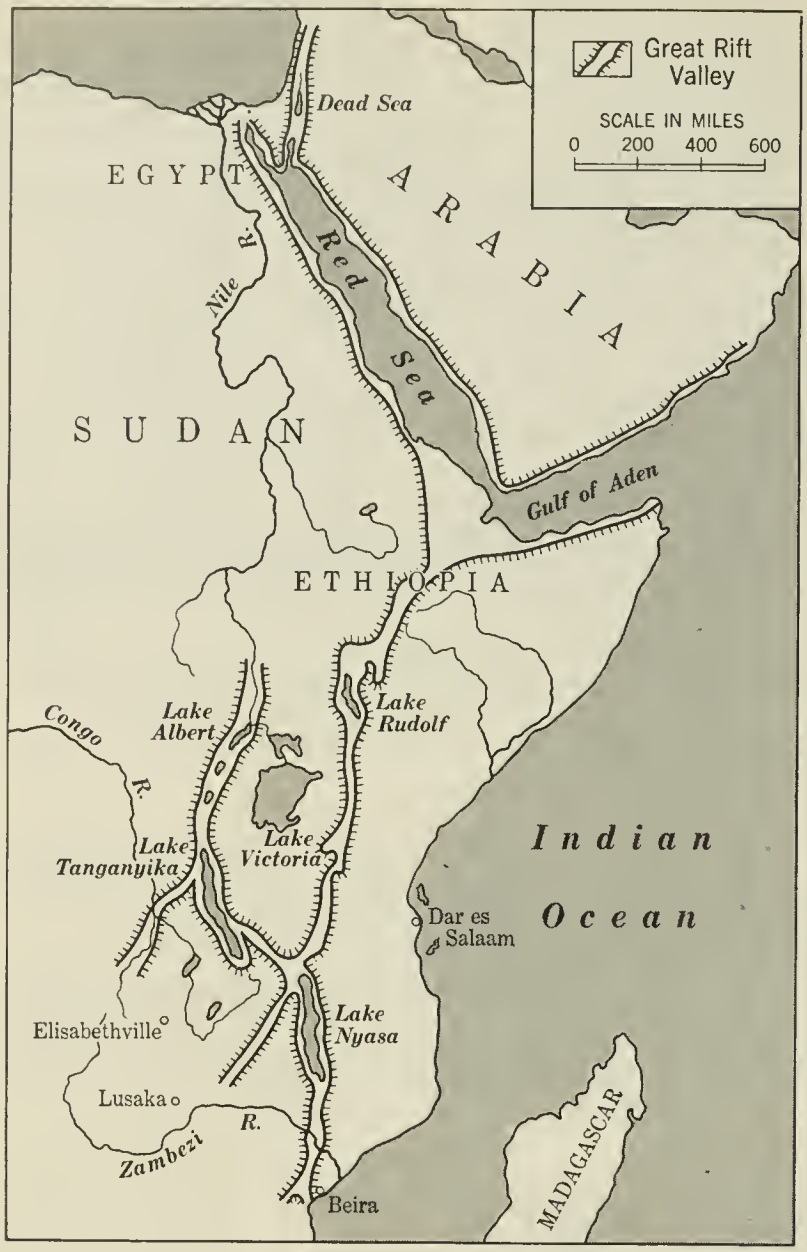
Beside Lake Tanganyika · The next morning we drive down a winding highway that drops nearly 3,000 feet in less than thirty miles to the shore of Lake Tanganyika. As we leave the mile-high grassland plateau around Abercorn, the air becomes hotter and more humid.

Lake Tanganyika, which is 420 miles from north to south, is the longest lake in the world. We have come here to meet our new guide, Mr. Buganda, who has arrived by steamer. Mr. Robertson introduces him to us, and adds, "Mr. Buganda will be a great help to you, because he knows East Africa well and speaks many languages, including *Swahili*, which means 'coast language.' It is a kind of Bantu language, mixed with many Arabic and other foreign words, and is understood by people all over East Africa."

With our new guide, we drive back up to Abercorn. Before we quite reach the top of the plateau, the car is stopped by a policeman who searches the car and Mr. Buganda's baggage, looking for tsetse flies. "These flies," Mr. Buganda explains, "are the worst problem in Africa. From here north and west, the country has been called the 'Kingdom of the Fly,' because the presence of the fly decides what we can do with the land."

After driving to the Abercorn airport to see Mr. Robertson off to Southern Rhodesia, we return to the hotel, where Mr. Buganda tells us about British East Africa.

He first asks us to find on the map (page 250) where we are now, at Abercorn, in Northern Rhodesia. Nearby is the southern



The Great Rift Valley.

end of Lake Tanganyika. The lake and the valley in which it lies are a branch of the Great Rift Valley. The main valley runs from Lake Nyasa northward through Tanganyika and Kenya to Lake Rudolf and even farther north, forming a long, deep trench in the earth's surface.

The four territories · Then we locate East Africa. On the east is the Indian Ocean, with the islands of Zanzibar and Pemba which together form a protectorate. In the northwest is Uganda. Between the seacoast and Uganda are two other territories—Kenya in the north, and Tanganyika in the south. These four together make up British East Africa. The biggest is Tanganyika, which is almost as big as Ontario. Then comes Kenya, about as big as Manitoba, followed by Uganda, about the size of the Maritime Provinces and the island of Newfoundland together. Zanzibar is quite small.

The population of East Africa is greater than that of all of Canada—nearly 19,000,000. More than 7,000,000 are in Tanganyika, Kenya has nearly 6,000,000, Uganda has 5,000,000, and Zanzibar has about 300,000.

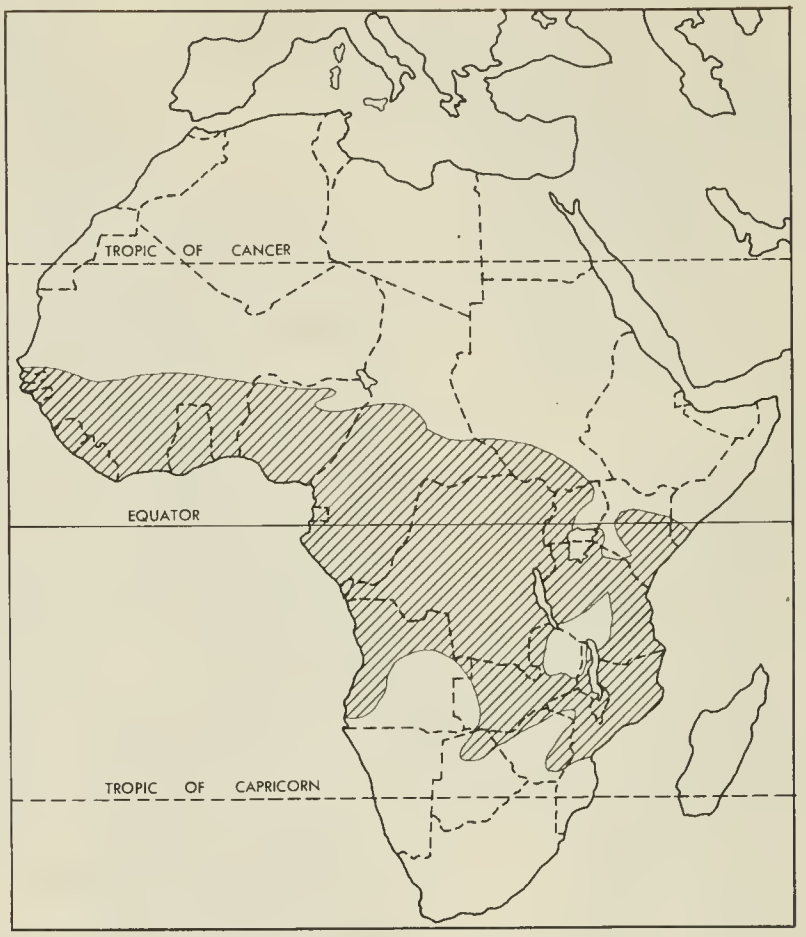
High land, low land · British East Africa is a region of "ups and downs," as Mr. Buganda puts it. The "ups" are very high, and include the three highest peaks in Africa—Mount Kilimanjaro, in Tanganyika, Mount Kenya, in Kenya, and Mount Stanley, in Uganda. The "downs" we already know—the bottoms of the rift valleys and the coastal plain beside the Indian Ocean.

Many climates · In latitude, East Africa runs from about 9° S. to about 5° N. The equator goes across Mount Kenya, the rift valley, and the largest lake, Lake Victoria. Yet although all of British East Africa is near the equator, the climate differs from place to place. The high mountains have snow and ice all year round; their peaks have an arctic climate. At sea level, on the coast, there is a tropical climate. It is very hot and sometimes very wet, and mangrove trees and palms grow there. Farther inland is dry savanna, with trees scattered over grasslands. Still higher there are evergreen forests, and above them meadows much like those in northern Canada. The regions between about 5,000 feet and 9,000 feet above sea level have a climate which has attracted many European settlers.

The "Kingdom of the Fly" · We have heard several times about the tsetse fly, and we ask Mr. Buganda why it is so important. "Where there are tsetse flies," he replies, "there can be no good cattle, sheep, pigs, horses, dogs, or other domestic animals. The tsetse fly carries sleeping sickness from one

animal to another, and even to human beings. About fifty years ago, an epidemic of sleeping sickness killed 200,000 Africans in one part of Uganda alone. In West Africa about three million dollars' worth of cattle are lost every year."

The map on this page shows the part of Africa—an area larger than the whole of Canada—where tsetse flies are found. Scientists are making a determined fight against the fly. Drugs have been made which sometimes cure animals of sleeping sickness and help to keep healthy animals from getting the disease. When it was found that the flies cannot live on open land, the forests in some areas were cut down. Because the flies carry disease from wild animals such as antelopes, in some places all wild animals are being cleared out. As the flies die out, African settlers, with their cattle, move onto the land.



"The Kingdom of the Fly."

This work is very important, because Africans are often poor, sick, and hungry for lack of good food. Good cattle will provide them with milk and meat; the manure will fertilize the soil to grow better crops of grains and vegetables. East Africa could raise more cattle than does Argentina, if only the land were free of disease. If the scientists win out against the fly, there will be meat to feed Africans and people in other lands as well.

Other diseases · There are many diseases in Central Africa besides sleeping sickness. Malaria is one. To overcome them, engineers are draining swamps and building better villages and towns; doctors are trying to cure people; scientists are learning to grow bigger crops to feed the people; and schools are educating both children and adults to help in the battle against disease.

East African peoples · The population of British East Africa is greatly varied. To begin with, there are about 220 different tribes of Africans there. There are Arabs in Zanzibar and other places on the coast. Many men were brought from India to help build the railways; they stayed on when the work was finished, and other Indians have joined them. In Kenya there are about 30,000 British settlers, most of them farmers. Government officials from Britain, doctors, scientists, engineers, teachers, and missionaries come to East Africa, and there are also missionaries and mining engineers from Quebec.

Making a living · What do the East Africans produce for a living, we wonder. Many of them produce very little, Mr. Buganda tells us. They have a few poor cattle and do a little farming but do not grow large crops. Much of the land is still not used. Yet East Africa produces 50,000 tons of coffee a year for export, large amounts of cotton, and a third of all the sisal produced in the world. Other crops are tobacco and tea, and plants which yield oils, such as soya beans and peanuts. For food, corn and rice are grown, while on the plateau the European farmers

also grow wheat. East Africa produces meat and wool, hides, and enough butter to export some to other parts of Africa and overseas as far as Great Britain. Where the climate is right, bananas and sugar cane are grown.

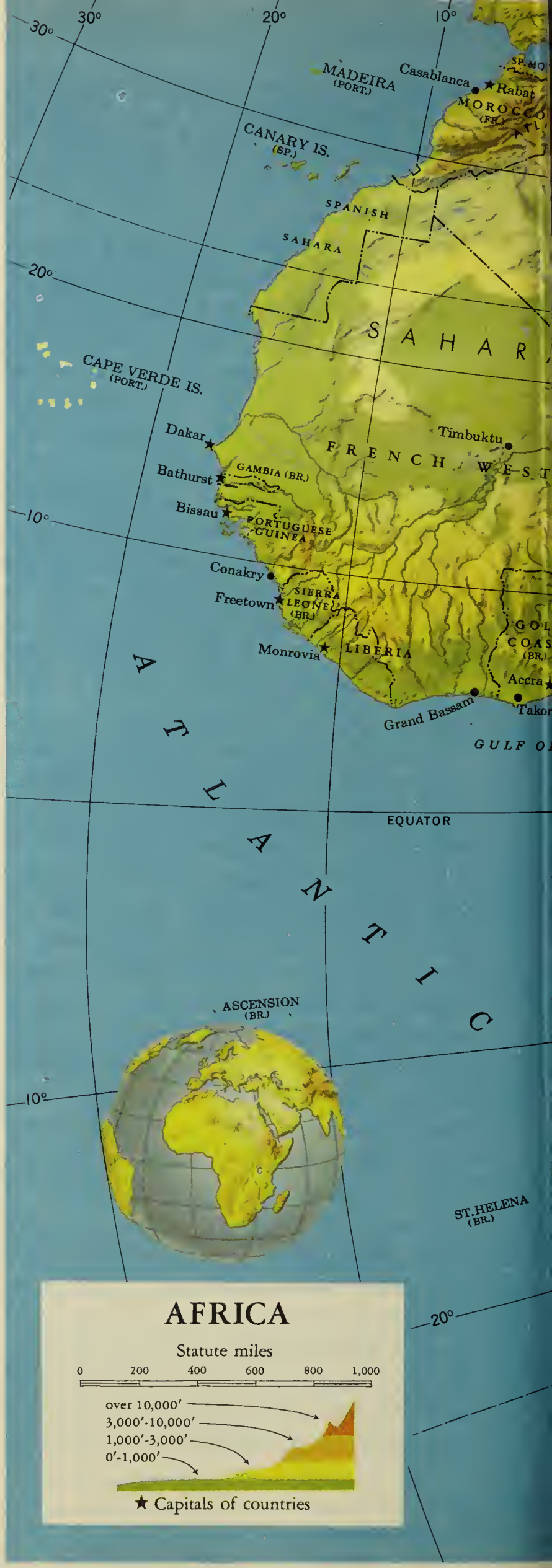
FLIGHT OVER BRITISH EAST AFRICA

Across Tanganyika

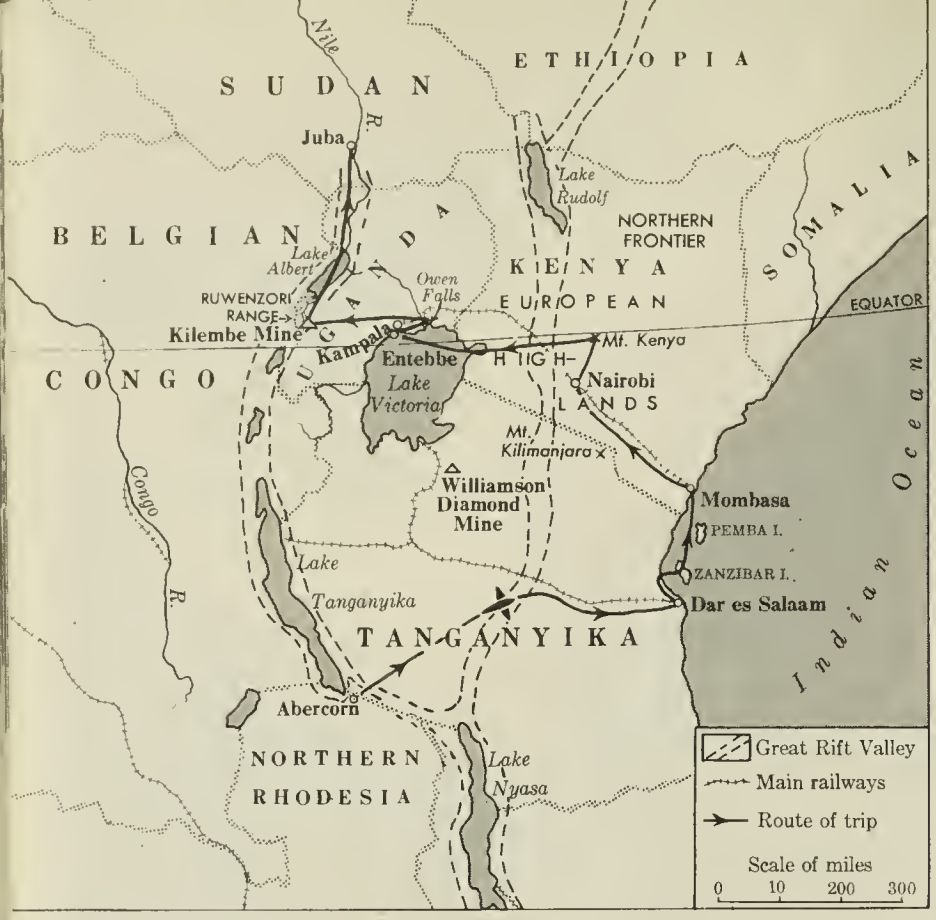
Eastward to the coast · Just before we leave Abercorn, Mr. Buganda has us trace on the map (page 250) the route we shall travel in East Africa. Then our plane takes off from Abercorn airport, and we soon cross into Tanganyika. The plateau beneath us ends suddenly and the land drops down into the broad trench of the Great Rift Valley. We see a small town where several roads meet; some of the land is being used for crops—mostly coffee and corn. Then we cross miles of forested country, with here and there a clearing made to stop the tsetse flies. The pilot flies lower and points to the ground, where we see five giraffes galloping along.

Presently we are flying over higher land on the far side of the rift valley. Then we see where the forest has been cut down to make way for the Tanganyika Railway. We follow the tracks across miles of forest toward the coast. On the way we fly over many large peanut plantations which the government has laid out to produce more vegetable oils. Each plantation has its own village for the African workers, and schools, workshops, hospitals, and often an airfield.

Dar-es-Salaam · As the sea comes in sight we fly toward the harbour of Dar-es-Salaam —the "Harbour of Peace," as it was named by Arab traders. We see ocean-going ships at the docks, loading and unloading cargoes and passengers for the Tanganyika Railway. We do not land here, but we study the port carefully from the air. At one corner there is a crowd of Arab *dhows*, or sailing vessels,



MEDITERRANEAN SEA
10°
20°
30°
40°
50°
Algiers
Tunis
TUNISIA (FR.)
Tripoli
Benghazi
Alexandria
Port Said
SUEZ CANAL
Cairo
ASIA
ALGERIA (FR.)
LIBYA
EGYPT
RED SEA
TROPIC OF CANCER
DESERT
Port Sudan
SUDAN
Omdurman
Khartoum
ERITREA
SENNAR DAM
Blue Nile R.
White Nile R.
FR. SOMALILAND
Djibouti
GULF OF ADEN
Berbera
BRITISH SOMALILAND
L. Chad
Kano
FRENCH
Addis Ababa
ETHIOPIA
NIGERIA (BR.)
Ibadan
Lagos
Enugu
Pt. Harcourt
EQUATORIAL
Juba
Nile R.
L. Rudolph
SOMALIA (U.N. TRUST.)
Mogadisho
AFRICA
PRÍNCIPE (PORT.)
SP. GUINEA
SÃO TOMÉ (PORT.)
L. Albert
UGANDA (BR. PROT.)
KENYA (BR.)
Stanleyville
RUWENZORI MTS.
Kampala
Entebbe
L. Victoria
Nairobi
EQUATOR
MT. KENYA
MT. KILIMANJARO
Mombasa
PEMBA
ZANZIBAR (BR.)
Dar-es-Salaam
Congo R.
BELGIAN CONGO
Costermansville
Brazzaville
Léopoldville
Matadi
CABINDA (ANGOLA)
Albertville
L. Tanganyika
TANGANYIKA (TRUST TERR.)
Mikindani
Loanda
Elisabethville
ANGOLA (PORT.)
Lobito
New Lisbon
RHODESIA-NYASALAND (BR. PROT.)
L. Nyasa
Broken Hill
NORTHERN RHODESIA (BR.)
Lusaka
Zomba
Mozambique
MOZAMBIQUE (PORT.)
MOZAMBIQUE CHANNEL
Zambezi R.
Salisbury
Livingstone
VICTORIA FALLS
SOUTHERN RHODESIA (BR.)
Beira
Tananarive
MADAGASCAR (FR.)
Bulawayo
BECHUANALAND (BR. PROT.)
SOUTH-WEST AFRICA (U. OF S.A.)
Limpopo R.
KRUGER NAT. PARK
TROPIC OF CAPRICORN
Windhoek
KALAHARI DESERT
Walvis Bay
Pretoria
Lourenço Marques
SWAZILAND
Johannesburg
UNION OF SOUTH AFRICA
Kimberley
BASUTOLAND
Pietermaritzburg
Durban
Bloemfontein
Orange R.
East London
Port Elizabeth
Cape Town
CAPE OF GOOD HOPE
INDIAN OCEAN
30°
0°
10°
20°
30°
40°
50°



Our trip through East Africa.

which carry copra and grain up and down the coast.

As we fly over the city, we see that the streets are lined with coconut palms, and palm trees also grow along the sandy shore of the bay. Soon we turn north again and fly along the coast toward the island of Zanzibar.

Zanzibar

A letter from Zanzibar · One of the girls in our group has written this letter to her mother and father in Canada.

Dear Mother and Dad,

I am writing from Zanzibar, in East Africa. To reach here, our plane flew along the seacoast from Dar-es-Salaam, the railway terminus for Tanganyika. There is a fine white coral beach most of the way, with coconut palms and mango trees on the shore. Then we turned out to sea to reach the island of Zanzibar, which is about twenty-five miles offshore. As we crossed the harbour, we could see small steamers tied up at the wharf, but the big liners were anchored farther out. We flew low over a fleet of brightly painted Arab dhows and the crews waved to us. Then we went over the African part of the town, where there are many little huts all crowded together, over an athletic field where people were playing cricket, and on to the airport.

Our special project here has been studying how they grow and export cloves. They say that almost all the cloves in the world are produced here on this island, and on the island of Pemba farther north. Cloves are really the unopened flower buds of an evergreen tree. The buds grow in clusters which must be picked at just the right time.

I should tell you something about the people here. There are about 300,000 in the Zanzibar Protectorate. Two-thirds are Africans, and they do most of the hard work. Next come the Arabs, who own most of the land, and then the Indians, who are the traders and businessmen and who seem to make most of the money. There are also a few people here from England, who work for the government or for the shipping and railway companies.

I must tell you about the Arab dhows, which sail between here and the Persian Gulf in Asia. As they have no engines, they use sails. From late November to February, the northeast monsoon wind blows to Africa from Asia. From April to September the southwest monsoon blows from Africa to Asia. The big ships sail back and forth with these two winds. It is a fine sight when they come sailing in at the beginning of the season, with all the crews singing and dancing on the decks. They take from here coconuts, poles cut from mangrove trees, fish, and cloth. At one time they took slaves too. From Arabia, they bring furniture, ivory, metal goods, and the other things we see in the shops here.

With love from

Jean

On to Kenya

Inland to Nairobi · From Zanzibar, our pilot takes us to the mainland at Mombasa, a fine modern seaport which handles most of the freight and passengers for Kenya and Uganda. Mr. Buganda says it is the best harbour on the east coast of Africa.

We fly inland over the railway track, as it runs northward through tropical forests with clearings for coconuts, bananas, and mangoes, then climbs up an escarpment to a low plateau. About halfway along the 330-mile journey to Nairobi, we have a wonderful view of Mount Kilimanjaro. The peak rises from a high, bush-covered plain, and the top is white with snow. Shortly before reaching Nairobi, we see a large meat-packing plant, where the cattle of the Kenya highlands are turned into canned beef.

Nairobi · At length we come to Nairobi, on the plateau about a mile above sea level. It is hard to believe that this city of more than 100,000 people was only a grassy plain sixty years ago. From the air it looks much like a Canadian prairie city, such as Regina, because the land around it is flat. Like Regina too, it began as a railway town.

Once on the ground, we soon see that Nairobi is different from a Canadian city. Many of the streets are lined with palm trees, and the soil is the red colour usually found in tropical countries. On the streets, among cars covered with red dust, we see station wagons loaded with camping gear, ready to set out on a *safari*, or big-game hunting expedition. Many of the people wear native dress; others are dressed as we are. Among the crowds we see some Indians, but most of the people are Africans. Near the edge of the town we see a Masai warrior. He is dressed in a faded blanket red with dust, and carries a long spear.

Nairobi is mainly a government and trading town, with good schools, hospitals, theatres, stores, and a famous African museum. It also has some small industries, making the kinds of goods needed in all cities.



British Information Services

An African policeman directing traffic on a main street in Nairobi.

Poor land and good land · The next day we visit a Nairobi school, where the geography teacher tells us about two different parts of Kenya—the "N.F.P." and the "European Highlands."

"We don't need to spend much time on the N.F.P.," he begins. "The letters stand for Northern Frontier Province, in the northern part of Kenya near the Sudan and Ethiopia. Although it covers more than half the total area of the country, it is dry, waste

Masai warriors with spears and shields.

T.W.A., Inc.





British Information Services

An expert shows an African farmer how to prune the coffee shrubs on his farm in Kenya.

land. No crops grow, and little grass. A very few natives herd cattle there and that is all.

"The European Highlands are very different," he goes on. "The Highlands are between 5,000 and 10,000 feet above sea level. This upland country is very fertile and has large estates, used mainly for raising sheep and cattle. Nearer Nairobi, on lower land which is also very fertile, there are European coffee farms. On still lower land, many Africans have small farms where they grow good crops of coffee, cotton, corn, and vegetables."

On again to Uganda · From the Nairobi airport, we fly north for a closer look at Mount Kenya, then turn west towards Lake Victoria, and soon are over the edge of the Great Rift Valley. "On the far side of the valley," Mr. Buganda tells us, "there are three farms that show the different climates caused by altitude. The lowest farm, in the valley, grows bananas and mangoes; the highest, far up on the mountainside where there are often frosts, grows apples and pears. The one in the middle grows pineapples. All three have different climates, yet they are not more than twelve miles apart and you can visit them all in less than an hour."

Once over the high ranges on the west side of the valley, we soon reach the shore of Lake Victoria. The lake here is more than a hundred miles wide, and we are almost out of sight of land before we finally see the far side. We reach the shore near Entebbe, in Uganda, and see the pier, the buildings, and the huge airfield there as we fly on northward to Kampala.

Uganda

Kampala · Kampala is a city of about 40,000 people. Besides being a railway and business city, it is the centre of the African government of the country. Mr. Buganda's home is in Kampala. We walk with him up to the top of a hill, from which he points out the university, several churches, a Muslim mosque, schools, stores, and many homes on the surrounding hills. "These buildings tell you that Kampala is an educational centre and a church centre, that there are fine hospitals here, and that we have many businesses," he says. "Our people include Africans, Indians, and Europeans.

"The British Governor and other officials live in Entebbe, about twenty miles away. Uganda is governed mainly by the native Governor and his Council. The British remain in the background. This system works very well, and we Africans believe that before too long, we can govern the country entirely by ourselves."

The climate of Kampala · Mr. Buganda goes on to tell us about the climate at Kampala, as this is the first time we have stayed within twenty miles of the equator in Africa. "As we are about 4,300 feet above sea level, it is never very hot. It averages about 70° every month in the year. We have about forty-five inches of rain in a year—some every month, but most of it in March, when the sun is overhead at noon and our shadows fall directly beneath us."

Uganda hydro · Our last tour in British East Africa takes us over a hydroelectric plant which is quickly changing the everyday life of people in Uganda. Until recently there have been few industries, because there is no local coal or oil. Now hydroelectric power is being made very cheaply not far from Kampala, at Owen Falls, where the Nile River leaves Lake Victoria on its 3,500-mile journey to the Mediterranean Sea. Some of the power will be used to light homes in towns and villages; some will pump water and do other work on farms and plantations; some will be used for railways; but most of it will go to new industries, preparing cotton for export, refining sugar, sawing lumber, and refining metals from ores.

On to Juba · After we have left Owen Falls, we fly westward towards Lake Albert. Not far from the Ruwenzori Range, we see Kilembe, where rich deposits of copper and other metals have been found. A railway is being built to them from Kampala. From Lake Albert, we turn north to Juba in the Sudan.

MAP EXERCISES · **1.** On the map on page 250, find these places: (*a*) the Great Rift Valley, between Lake Nyasa and Lake Rudolf; (*b*) Lake Victoria and Owen Falls; and (*c*) Ruwenzori (Mountains of the Moon).

2. Follow the railway line from Nairobi to Kampala, then follow the route by which the copper from Kilembe will reach the coast for export when the line between Kampala and Kilembe is finished.

SOME THINGS TO DO · **1.** Make two lists of crops: (*a*) those growing near the seacoast in East Africa; and (*b*) those growing in the uplands around Nairobi.

2. Find in reference books which two lakes in the world are larger than Lake Victoria. What part of Tanganyika and Kenya may once have had a very long, narrow lake that is now dried up?

SOME THINGS TO FIND OUT · **1.** Tanganyika produces about a tenth of all the diamonds in the world. Most of them come from a mine discovered by Dr. Williamson, who was once a geologist at McGill University in Montreal. In reference books, find out what you can about this Canadian and his mine, and prepare a report on him for the class.

2. Try to find out how the Masai tribe live, what they eat, what they do, something about their history, and some of their problems.

THE VALLEY OF THE NILE

The White Nile · Juba is a small town on what is called the White Nile, the part of the Nile River which has its beginning in Lake Victoria. The town has grown up where rapids force boats coming upstream to unload their cargo and passengers. We are waiting at the large airport for a plane to carry us northward down the Nile Valley. The day is hot and the sun is bright.

The Nile waters · While we wait, Mr. Buganda gives us his last talk. "You have seen the beginning of the White Nile at Lake Victoria," he says. "There is a second tributary,

This irrigation canal brings water from the Nile to the cotton fields.

British Information Services





Our route through the Sudan.

the Blue Nile, which rises in Ethiopia, far to the northeast. The two join to form the main river at Khartoum, where you are going next. The Nile then flows northward through Egypt to the Mediterranean Sea.

"The people of the Sudan and Egypt need the water of the Nile to grow their crops. It is the only water they have, for their lands receive almost no rain. They have an agreement as to how much each shall use. Egypt, the Sudan, Uganda, and the Belgian Congo are all interested in the Nile, and they share the cost of building dams on the White Nile, the first of them at Owen Falls, and another just north of Lake Albert. From these new dams will come water for Egypt to irrigate another seven million acres of desert land and for the Sudan to irrigate another two million acres. Uganda and the Congo get the electric power from the dams.

"Near Khartoum you will see two very large dams, one across each of the two Nile rivers. If you were to follow the Nile still farther north to Egypt, you would see six more big dams at different places. This map shows where the dams are."

Northward to Khartoum · We thank Mr. Buganda for his kindness and wave goodbye as his car drives away. Then we board our plane and follow the White Nile northward towards Khartoum. After many miles of dry grassland, cut by the river, with green fields nearby, we see a railway ahead. It crosses the river from the west and we follow its tracks east to the Blue Nile. There the railway crosses the river on top of the high Sennar Dam, and continues to the shore of the Red Sea at Port Sudan. Behind the Sennar Dam is a very long lake, with many small canals leading out from it into the countryside. Where there are canals, everything is green; where there are none, the bare ground is brown and yellow. We are told that the Sennar Dam is one of the biggest irrigation dams in the world, and the lake behind it is fifty miles long. It irrigates a million acres to produce very fine cotton.

Khartoum · We fly on to where the two Nile rivers meet near Khartoum. From the air we can see the plan of the city, like a wheel, with tree-lined streets running out from the centre. Across the White Nile to the west, we see the crowded, flat-roofed brick houses of the Arab town, Omdurman.

Our plane lands, and we are taken to stay at the famous Gordon College. The day is very hot. When we mention it, one of the students says that Khartoum is almost always hot. The average temperature is 83° and it is often over 100°. The shade trees, fine lawns, and gardens of Khartoum are all irrigated. Away from the canals, there is nothing but dry and stony earth.

The Sudanese and their government · There are two main types of people in the Sudan. In the north, where the land is desert, they are much like the Arabs and Egyptians. These

are the best educated and most prosperous Sudanese. In the south, an area of hot grasslands and trees, they are more like the Negro and Bantu people of the Congo and Uganda. The Sudan has been governed for many years by Great Britain and Egypt. Now the Sudanese are to govern themselves.

Products of the Sudan · Two exports pay for most of the goods which are imported into the Sudan; cotton, which is grown on the irrigated lands, and gum arabic, which is obtained from a tree. For food, the people grow millet and other grains. They keep many cattle and sheep, for this area is north of the region of the tsetse fly.

Sudan crossroads · The population is not large, and three-quarters of the area is desert, but the Sudan is an important part of Africa. This is due to its location. It controls the flow of the Nile water used by Egypt, and roads and airways running north and south in eastern Africa pass through it, as do the airways across Africa from the Atlantic coast to Asia in the east. Muslim pilgrims from far away Nigeria stop there on the way to Mecca in Arabia. In many ways, the Sudan is the crossroads of Africa.

NEIGHBOURS · The Sudan has six neighbours. Find them on the map on page 249 and learn their names. On the west is French Equatorial Africa. On the northwest is Libya, and on the north, Egypt. Ethiopia is on the east, and Kenya on the southeast. Uganda is on the south. On the southwest is the Belgian Congo.

WHAT DID HE MEAN? Explain what a Sudanese student meant when he said: "All the green fields and fine cotton crops of the Sudan are watered by rain which fell in far-away Ethiopia and East Africa."



British Information Services

Baling cotton, the product which brings wealth to the Sudan.

ETHIOPIA

Ethiopia has been mentioned a number of times, and we ask one of the college teachers about it. "Much of Ethiopia is very mountainous, and travel there is not easy," he tells us. "Through the centre of Ethiopia runs the Great Rift Valley, which you saw in Kenya. Some parts of the country near the Red Sea on the east are low. They are mainly desert.

"Because most of the land is so high, it gets quite heavy rainfall in the summer. That explains why the Blue Nile begins there. The highlands are, of course, cool. At the capital, Addis Ababa, which is about two miles above sea level, the temperature is about 25° lower than here in Khartoum.

"No one knows the exact population of the country; possibly it is about the same as that of Canada. Addis Ababa is a large city, with about 300,000 people. There is a good road all the way up to it from the coast and a railway as well. The city also has the highest airport in Africa.

"Ethiopia does not need to import foods. It grows enough crops to feed its people, and has sheep and cattle for meat. Some of the chief crops are coffee, sugar cane, cotton, and tobacco. For many years it was one of the few countries in Africa with no coastline. Now it includes a part of the Red Sea coast, but to reach the sea, its people usually go through a French colony."

THE SOMALILANDS

The teacher goes on to talk about the Somalilands. "The coastal lands of northeastern Africa are mainly desert," he says. "They are divided among three European nations. On the north is French Somaliland, then comes British Somaliland, and at the southern end, Italian Somaliland, now called Somalia. All three have small seaports from which they export a few products, such as coffee, gum arabic, sheepskins, and cotton."

QUESTIONS TO ANSWER · **1.** Which countries share in paying for the dams in the valley of the Nile? Why are they all willing to do so?

2. About thirty years ago, the very dry land between the Blue and White Niles south of Khartoum was planted with cotton. Today the farmers in that area are prosperous and their families are well cared for. What made these changes possible?

A DISCUSSION · Egypt has for many years wished to include the Sudan as a part of its own territory. Discuss the reasons for this.

TROPICAL WEST AFRICA

THE BELGIAN CONGO

Flight to the Congo · From Khartoum, we fly directly to Stanleyville in the Belgian Congo, a distance of about 1,000 miles. Leaving from a desert region, where plants must be irrigated by water from the Nile River, we are going to an area of tropical rain forest. The last time we saw this type of vegetation was in the Amazon Valley in South America.

After taking off from Khartoum, we cross a region covered with tall grass, usually well over six feet high. Farther south we see, close to the rivers and streams, dense dark green forests, in which many of the trees, we are told, are a hundred feet high. Once we have crossed the boundary from the Sudan into the Congo, the land beneath us is a "sea" of dark green tropical rain forest.

Presently we cross a large clearing in this forest, and see a railway leading to a small town. Cotton is grown there, and the railway carries it to a tributary of the Congo River, where it is put aboard a steamer to be taken to the coast.

When we have travelled three hundred miles into the Belgian Congo, we catch sight of the wide Congo River, from which the colony gets its name. The river and its many tributaries are used by river steamers to connect the heart of Africa with Atlantic ports.

Stanleyville · As we approach Stanleyville, we see that it is a neat and well-planned city, with large schools, hotels, banks, theatres, and several factories. We are told that there is also a medical school, where scientists study the best ways to control the tsetse fly and to treat people suffering from sleeping sickness.

Settlement was begun here because not far upstream the river is blocked by rapids and the steamers can go no farther. They have to unload their cargoes and passengers and send them on by railway. Stanleyville has grown up where the ships load and unload. We recall that Montreal had a similar beginning near the Lachine rapids.

At the airport, we are met by a Belgian school inspector, Dr. Albert, who drives us in his car to a college where we are to stay. The college is modern and comfortable, and the classrooms are far better than we expected to find in the middle of Africa. Dr. Albert stands beside a large map, marked *Congo Belge*, and begins to speak.

"I shall try to tell you about this part of

Africa," he says. "The Belgian Congo—or Congo Belge, as we call it—is a colony of Belgium, the country in Europe from which I come. Most of the Europeans you meet here speak French."

Congo climate · Dr. Albert tells us about the climate of the Belgian Congo. "The climate here is hot and damp. Native Africans are accustomed to it, but Europeans find it trying. Now that we have better houses, good hospitals, fresh water, good sewers, and new drugs, Europeans are able to live here safely. The best place for Europeans in the colony, however, is in the mountains off to the east, near the border of Uganda, beside Lake Tanganyika. There are white farmers in that district, as there are in the Kenya Highlands."

Native people of the Congo · We ask about the native Africans in the Congo. First Dr. Albert describes the very small people who live in the depths of the forests. They are the Pygmies, who are about four feet in height. They are much like the Pygmies we learned about in South Africa. Here they have not changed their way of life through trade with Europeans. They still live by hunting, mainly with bows and arrows.

Almost all the rest of the natives are Bantus. Some have learned European ways, because they live in cities, or work in mines, factories, or plantations. The others still live in a primitive way. All the members of a family live together, and share everything; no one can starve so long as the family has food on hand. A number of families together form a clan, and several clans form a tribe, which may be very large, sometimes numbering a hundred thousand or more people. The chief of the tribe is a very important person. He wears a leopard skin to show his position, and receives gifts of game or fish, ivory, or crops, from the tribesmen.

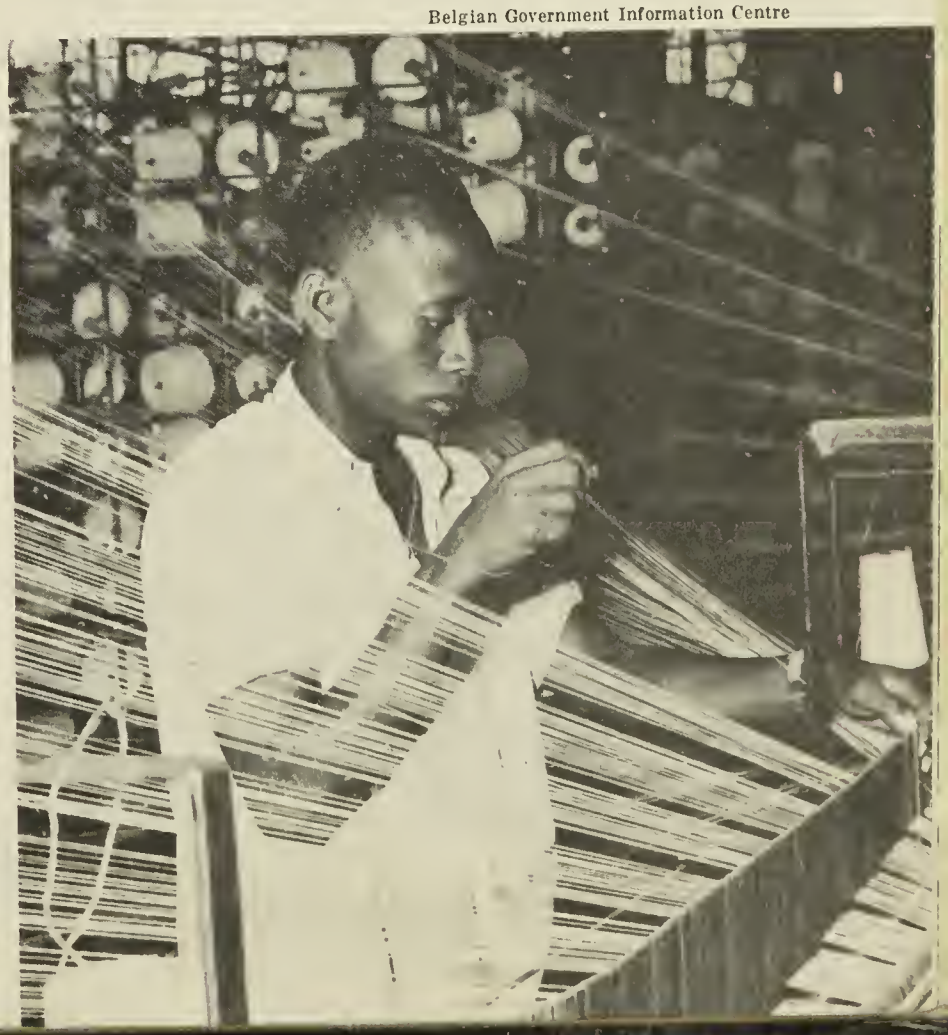
Many Congo natives still live mainly by hunting. They use poisoned arrows, or dig pits to trap the animals. Their homes are large round or square huts of wooden poles, with thatched sides and roofs.

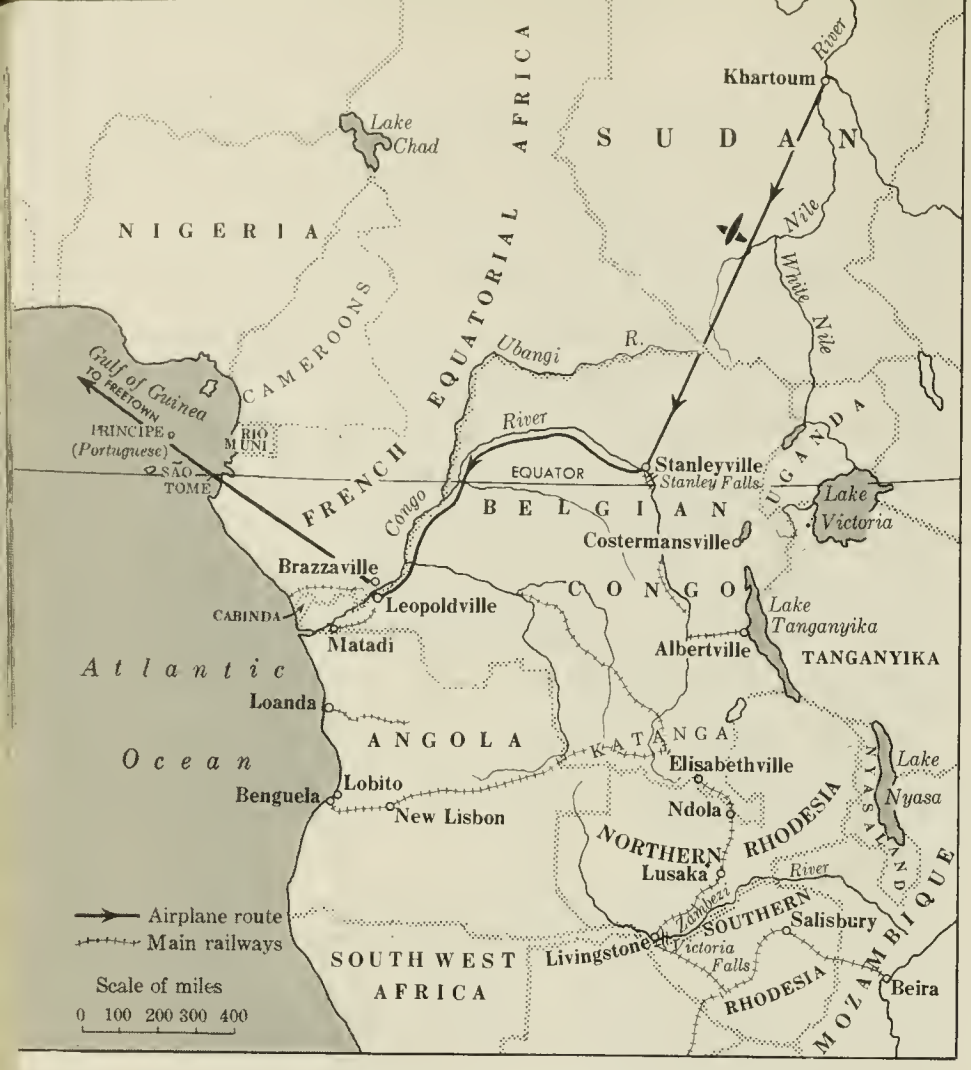
The native way of life is now changing rapidly in the Congo, as in other parts of Africa. In mining areas, such as Katanga, there are villages where Africans live in European style. Many have moved to the cities; in fact, the population of cities such as Stanleyville, Leopoldville, and Elisabethville is largely African.

Mineral wealth · The most important products of the Congo are minerals. The colony produces about a tenth of all the world's copper, and it is a storehouse of uranium, zinc, tin, diamonds, coal, and many other minerals. The richest mining area is the Katanga, a plateau region not far from Ndola in Northern Rhodesia. The copper ore is refined near the mines and the metal is shipped to Belgium. Much of the uranium and radium goes by plane to North America, where it is used for producing atomic energy.

This African worker in a textile mill is not likely to go back to the native way of living.

Belgian Government Information Centre





Our trip through the Congo.

These valuable minerals from the Congo bring great wealth to the small country of Belgium. Some of the wealth is also used in making life easier for the Congo people.

Wealth from farms and plantations · The Congo forests produce hardwoods, and many agricultural crops come from farms and plantations. The most important crops are rubber, cotton, and cacao. Palm nuts are gathered to produce palm oil, which is exported to be made into soap and margarine. The Belgian government has set up scientific stations at several places in the Congo to help improve crops and other products and to provide better food for the native people.

The valuable palm tree · Some kinds of palm trees are very valuable to Africans. The leaves are used for making baskets, ropes, and roofing materials. The trunk serves as pillars in buildings, and is also used in making bridges. The nuts give oil, and the shells are used for fuel. Sometimes the fruit is used to feed livestock.

Manioc for food · The most important food crop of the Congo is manioc, usually called cassava in Africa. The plant, which is a small bush, needs warmth and moisture, but it grows very easily and does not need great care. It has white and yellow roots, rather like beets or carrots in shape. These are the parts eaten. The natives pound the manioc into a coarse flour they call *gari* and make a kind of bread from it. Europeans eat manioc as tapioca.

Flight down the Congo River · As our plane leaves Stanleyville for Leopoldville, we notice the many barges, small boats, and large steamers crowding against both banks of the Congo River. The products of the mines and plantations are put on board vessels here to begin the long journey to Matadi, a seaport near the mouth of the river.

As we near the end of our flight, two cities come into view. The one on the south bank of the river is Leopoldville, the capital of the Belgian Congo; the city opposite, on the north bank, is Brazzaville, the capital of French Equatorial Africa. Our plane lands at the busy airport of Leopoldville, known locally as "Leo."

Leopoldville · By the time we get to the hotel, a little after seven, it is dark, for in all the tropical countries there is very little twilight. The next day we tour the city, and find it very modern. At the busy docks there are stacks of cargo being moved from river boats to freight cars to be taken to Matadi for export. Nearby there is a shipyard, where river boats and barges are being built. There is busy traffic in the streets. We see new schools and government offices, fine business buildings, and modern homes with beautiful gardens. Planes drone over the city, and we hear the shunting of locomotives in the freight yards. The many factories turn out goods for local use and export.

We are interested in the schools. The

Belgians are training the Congo Africans to earn a living—to become farmers, carpenters, iron workers, weavers, mechanics, and river pilots. These skilled workmen can help to produce the goods needed for export. Many grade schools are being built for Africans, but high schools and colleges are mainly for Europeans. At present there is nothing in the Congo like the university at Kampala in Uganda or the agricultural college in South Africa.

A LIBRARY ASSIGNMENT · Stanleyville is named after a famous newspaperman and explorer, who crossed Central Africa from the Indian Ocean to the Atlantic in 1877, and a few years later returned to the Belgian Congo to develop it for King Leopold of Belgium. Find out what you can about Henry M. Stanley in reference books. What connection had he with Dr. David Livingstone, another great explorer of Africa?

A COMPARISON TO MAKE · In what ways are living conditions in the Congo like those in the Amazon region, and in what ways are they different?

SOMETHING TO LOOK UP · Using reference books, find what you can about the origin of these Congo place names: Stanleyville, Leopoldville, Elisabethville, Albertville.

MAP WORK · **1.** Some railways are built to carry products to rivers, and others are built around rapids in the rivers. Look carefully at the map on page 258 to discover such railways in the Congo.

2. Planes leave Stanleyville for many places. Draw a map of Africa and use straight lines to show these air routes: Stanleyville to—Khartoum, Nairobi, Costermansville, Albertville, Dar-es-Salaam, Elisabethville, Leopoldville.

A STORY TO WRITE · Write a story about a visit to a Congo village. Look up information in reference books about how the people live, what they wear, what they do.

MAKE A LIST · Make a list of all the uses you can find for palm trees.

ANGOLA, A PORTUGUESE COLONY

On the map we have noticed a colony named Angola, at the mouth of the Congo on the south bank of the river. We ask the hotel manager about it.

"Angola," he says, "is a colony of the European country, Portugal. The Portuguese were very early explorers of Africa, and they still have some colonies on this continent. Two of these—Angola and Mozambique—are large. The others are small. Look on the map (page 249) for Portuguese Guinea, two small islands named São Tomé and Principe, and Cabinda.

"The capital of Angola at present is Loanda, on the seacoast. A new capital is to be built at New Lisbon, far inland, on a railway leading from the seaport of Benguela into the Belgian Congo near Katanga."

CAN YOU TELL WHY? New Lisbon is 150 miles inland from the coast, and is located in the highest part of the colony. Can you suggest a reason for this location?

TRAVEL BETWEEN COLONIES · Look at the map on page 258. Could a person get all the way across Africa by train from Lobito, in Angola, to Beira, in Mozambique?

FRENCH AFRICA

To Brazzaville · We have been told that large parts of Africa are French, but have not yet visited any French territory. From Leopoldville it takes us about twenty minutes to go by motor launch across the Congo River to Brazzaville. There we are welcomed by a French guide. The city, we find, is very much like Leopoldville, across the river, and the people of the two cities are alike.

Education for Africans · Our guide tells us that the French do not train their native people in the same way as do the Belgians. Those who are clever can get a good education, either in Africa or in France, and so

become lawyers, engineers, doctors, soldiers, and government officials.

French government in Africa · Our guide explains that French Africa is governed in a different way from most colonies. All French lands in Africa are treated as parts of France, and send members to the French parliament. If people are well educated, they have the same rights as any other French citizens.

French colonies in Africa · We ask the guide to explain where the French colonies are. "Much of Africa lying west of Libya, the Sudan, and the Belgian Congo is French," he says. "Study this map (page 249), which shows other European colonies along the west coast. Some are Spanish, others British, and some Portuguese. The French area is also divided into separate colonies. We are now in French Equatorial Africa. When you visit West Africa and North Africa, you will learn more about French colonies there."

Madagascar · We remark that the island of Madagascar is marked *French* on the map. "Yes," says our guide, "that island, in the Indian Ocean off the coast of Mozambique, is French. It is a long, narrow island, almost as large in area as Manitoba. A range of high mountains runs down the middle of the island. The southeast trade winds, which blow across Madagascar, drop most of their moisture on the east side of these mountains, and the west side is very dry.

"Madagascar is a modern land in many ways. All children are supposed to go to school, and there are good colleges, a school of law and medicine, and many modern industries. The capital city, Tananarive, is about as large as Winnipeg. The natives of Madagascar are not true Africans, but are related to the Polynesians of the Pacific."

SOME QUESTIONS · **1.** Angola has a cooler coast than we expect of a place near the equator. Why is this so?

2. What difference does it make to the education of an African schoolboy whether he lives in Leopoldville or Brazzaville?

BRITISH WEST AFRICA

SIERRA LEONE

From Brazzaville we fly northwest across the Gulf of Guinea to visit the British West African colonies. Our first call is at Freetown, in Sierra Leone.

Sierra Leone was the first British colony in West Africa. It was founded more than 150 years ago, and among its first settlers were Negroes from Nova Scotia, slaves who had escaped from the United States.

Arrival at Freetown · Our plane lands at the Freetown airport, which is across the Sierra Leone River, some miles from the city. From there an African government official takes us by motor launch to Freetown.

The river is a busy place. Freighters are loading cargoes of iron ore, chromium ore, and different kinds of oil nuts. "The river mouth here is the safest harbour on the west coast," our guide tells us. "The British Navy used the harbour in the old days as a base from which to stop the slave trade along the coast. Until recently, all cargoes had to be carried to ships in barges. Now a long quay is being built, and the harbour is being deepened."

A wet and dry climate · We ask the guide what the weather is like in Sierra Leone. "If you are not used to it," he tells us, "you will usually find it very hot and damp. Here at the coast it is not pleasant, but on the higher ground inland it is much better.

"We have a wet season and a dry one. In the wet season it rains very heavily. The rainfall averages about twenty-five inches

each month, and sometimes there is as much as 125 inches in a single month. The dry season, especially in January and February, is very hot and very dry and dusty. That is when the hot, dry wind, called the *Harmattan*, blows from the desert northeast of us."

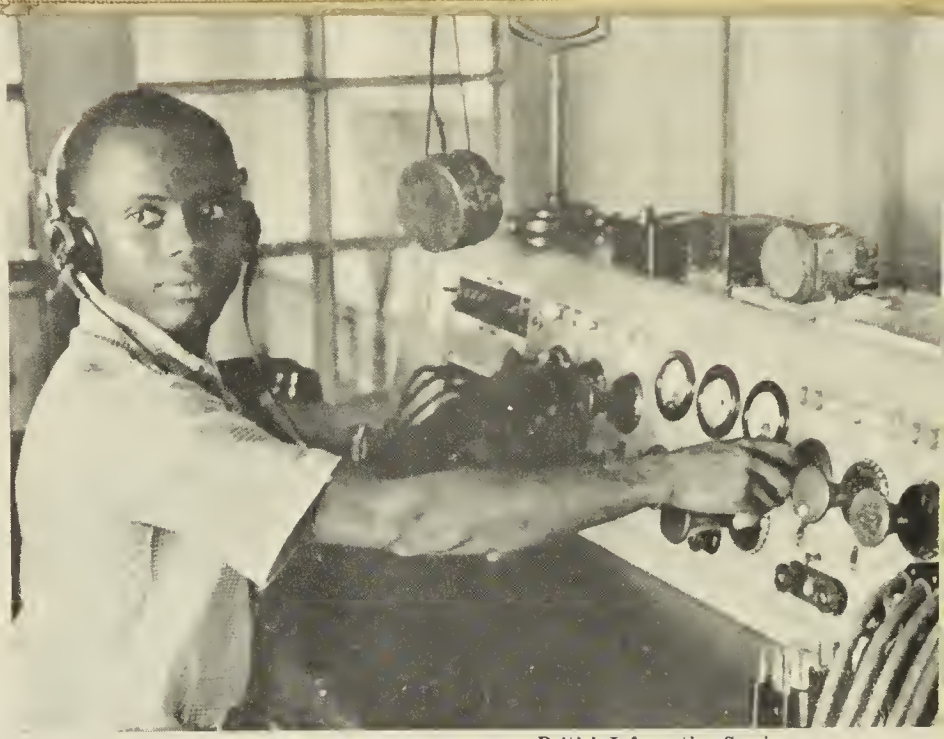
What the people do · While we are in Freetown, we stay at a college where African students are given the same courses as are given at universities in Britain. They learn to become lawyers, engineers, scientists, clergymen, and teachers. There are not many industries in Sierra Leone—the railway repair yard and the shipyard are the chief ones. The mines provide work for many people, for minerals—chiefly iron, chromium, and diamonds—make up about half the exports of the colony. Most of the people, however, are farmers. Their main food crop is rice, and their principal products for export are nuts.

Health measures · We visit a hospital in Freetown, to meet a European doctor who is working to help prevent malaria in the colony. He tells us that at one time Sierra Leone was called the "white man's grave," but he believes that malaria can be wiped out in time. "If we succeed," he adds, "the people of Freetown will be healthier, happier, and better able to work."

Government in the colony · Our guide explains that the British way of governing a colony like this is to train the Africans to govern themselves. Of course, this cannot be done all at once, but already three-quarters of the members of the government are Africans.

FLYING TO THE GOLD COAST

On our way again · The next part of our journey takes us along the coast from Freetown eastward to the Gold Coast. Our plane rises and makes a slow turn around the high mountains. There are few mountains close to the West African coast, we are told. Usually the coasts are low and swampy, and not high and rocky as they are at Freetown.



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"The new Africa." A highly trained African controls the broadcasting panel at the radio station in Accra.

Flying over Liberia · After leaving Sierra Leone, we fly across Liberia. "This is not a colony," a friend explains. "It is an independent country, founded more than a hundred years ago as a homeland for freed American slaves. The capital, Monrovia, was named after an American president. Today a rubber plantation owned by a United States company produces almost the only export—crude rubber."

An African land · As we fly on over the coast, our friend tells us something about West Africa. "The foreigners who came to West Africa by sea were stopped from going inland by malaria and yellow fever. Arab horsemen who tried to enter by way of the great deserts of North Africa, were stopped by the dense tropical rain forests and the tsetse flies. As a result, the Negroes of West Africa were left to live in their own way. Today there are still few white men in this part of Africa; it is still an African land."

Overseas trade · We ask our friend what goods are exported from British West Africa



Our journey through West Africa.

to pay for the goods coming in. "Exports of vegetable oil have increased twelve times in value in the past fifty years," he tells us. "Still more valuable is the export of cacao beans. Sixty years ago no cacao was grown here at all. Today half the world's chocolates begin as cacao beans in the Gold Coast and Nigeria."

"Is the cacao grown on plantations?" we ask, thinking of the cacao in South America.

"No, it is not," our friend replies, "and that is important. Both the palm nuts and the cacao are produced by Africans on their own little farms. Each farm produces but a small amount, but the produce of the many farms adds up to a large total.

"Other products are increasing in value too. We are shipping ten times as much lumber from our forests as we did ten years ago. As well as gold, other minerals, such as manganese and bauxite, are important exports."

THE GOLD COAST

Takoradi · As our friend is speaking, the big flying boat is circling before coming down on the sea. We have reached Takoradi, in the Gold Coast.

Twenty-five years ago, Takoradi was a little fishing village. Now the harbour has a long sea wall, and many ore docks and steamship wharves running far into the sea. At first many of the workmen needed here were brought out from Britain, but Africans now do much of the skilled work. There is a technical school in Takoradi for training mechanics and engineers.

When we go ashore, we find Takoradi a very busy place. Construction is going on everywhere, to house workmen and build new industries. There is a large railway freight yard, where not many years ago there was dense tropical rain forest. The railway runs inland for about 150 miles. It is used to bring cacao, nuts, and other products to the seacoast. In the harbour, ships are loading cacao, manganese, lumber, and palm oil. Some are taking on bauxite, which is found in very large amounts in the Gold Coast.

Gold Coast imports · We ask a harbour official what imports come into the Gold Coast from abroad.

"The largest single item is cloth," he replies. "We import enough of it to supply every man, woman, and child in the colony with twenty-five yards each a year. It is not ordinary cotton cloth, but is brightly printed and specially designed for the people in this

part of the world. We import half a million pairs of shoes a year. Millions of jute bags are brought in, to be used for cacao beans and palm nuts. We also import flour, sugar, and many other kinds of food. Because wood is destroyed here by ants, we use a great deal of cement and steel sheeting in our buildings, and these have to come from abroad. Here in the tropics you soon get used to the thundering noise made by the rain on our sheet-iron roofs. We also import cars, trucks, buses, and locomotives and other railway equipment. We do not produce petroleum, and that must be brought in also."

Journey to Accra · The journey to Accra takes us eastward along the coast. Here the shoreline is swampy, with many mangrove trees. The water offshore is shallow; large white waves break over the many sandbanks. Because of the shallow water, large ships cannot come close to shore. They must anchor some distance out. Passengers and cargo are taken to or from the ships in large rowboats, called *surf boats*. Even automobiles are landed in this way.

Gold Coast capital · Accra, the capital of the Gold Coast, is a large and busy city, an important port, and the terminus of a railway running inland. The city has many schools; Achimota College and a university for Africans are also located there.

A visit to a school near Accra · We drive some miles out of the city to visit a boarding school, to which African children come from many different parts of the country. The large buildings, designed to be cool in the hot weather, are sheltered from the sun by shade trees. Because many of the children will later take up farming for a living, there are flower plots and vegetable gardens in the grounds, and nearby a model farm.

"Children begin school here when they are five or six," the principal tells us. "School work is very much the same as in Canada. The children learn arithmetic, reading, geography, history, and so on. They are taught at first in one of the local languages, but after the third grade, all the teaching is in English.

"To graduate from high school, these students try the same examinations as do students in England. Afterwards, most of them go to work in their home towns or villages, but some go on to college."

The Volta hydroelectric development · One thing we want to see in the Gold Coast is the famous Volta hydro project. An engineer drives us for many miles east of Accra, across rather flat and dry country where we see few farms.

"This land is not of much use just now," he says, "but later it will be irrigated by water from the Volta River. We are building a high dam across the river to make the biggest man-made lake in the world. From it, water will be brought in canals to the dry land, which will then have good farms of cacao, palm trees, vegetables, and corn. The water held back by the dam will also be used to produce electricity for the towns and villages and for the very large aluminum plant we are building. This plant will use Gold Coast bauxite and then we shall export

The whole family helps to harvest the cacao crop on a Gold Coast farm.

British Information Services



aluminum metal. We are also at work on a new seaport, down at the coast.

"This is the biggest engineering job ever done in West Africa. We are all very happy about it, because most of the workmen, including the engineers, are our own African people from the Gold Coast. It is also the first big job undertaken by our new Gold Coast government. We now have elections, as you do in Canada, and the Prime Minister and the members of the government are now chosen from among our own people. Great Britain has always helped us, but we like to do things for ourselves when we can."

NIGERIA

Flight to Nigeria · We fly from Accra to Lagos, in Nigeria, with some engineers from the Volta project. As we leave the Gold Coast, and fly across part of French West Africa, an engineer tells us about Nigeria.

Four regions · Nigeria, he tells us, is a large country. It is a little larger in area than Ontario, and it has a population of about twenty-five million. Within such a large area, there are great differences in the land surface, the climate, and the vegetation. There are really four types of country. Near the seacoast, and for about fifty miles inland, there are mainly swamps and mangrove forests. From there to about a hundred miles farther inland, there is dense tropical forest, like that of the Congo Basin. Cacao and palm oil come from these forests. Still farther inland, there is more open woodland, with some areas of tall grass. This is savanna. Finally, still farther north, covering about half the country, there is a grassland plateau, which turns almost to desert in the far north.

The climate · Two important winds blow across Nigeria. One, the Harmattan, is dry and dusty. From November to April, it blows from the dry interior out toward the sea. The other is a wet wind, blowing from the sea toward the land, bringing rain from May to October. These changing winds are monsoons, like those in northern Australia. The seacoast receives as much as 140 inches of rain in a year, but the rainfall becomes less and less farther inland, until in the north it is as low as twenty-four inches, or even less in the dry years. All of Nigeria is hot the year round, the average temperature being about 80° F. This heat does not bother the Africans; they are used to it.

Transportation · There are more than forty good airports in Nigeria. Many of the roads are excellent, and so are the railways, which are shown on the map on page 262. Two lines run inland from the coast and meet in the middle of Nigeria. Another line runs on north to Kano and beyond.

The people · Nigeria is one of the most densely populated countries in Africa. The twenty-five million people include several different nations, speaking different African languages. In religion those in the north are mainly Muslims, and some in the south are Christians, but many people still cling to the old pagan beliefs.

Lagos · Lagos, the capital of Nigeria, is about the size of Winnipeg. It was built originally on an island off the coast, but it has now spread onto the mainland opposite. As we look at its modern buildings and streets, it is hard to believe that it was once a resort of slave dealers. The harbour is crowded with ships from many countries. There are big freight yards, to which trains from the interior bring cacao, palm nuts, palm and other vegetable oils, and minerals, the country's most valuable exports. Industries in the city produce some of the goods needed by the local people, build railway equipment, and process products grown in Nigeria.

A letter from Ibadan · From Lagos, we go inland to Ibadan. One of the boys sends this letter to a friend in Canada.

Dear Bill,

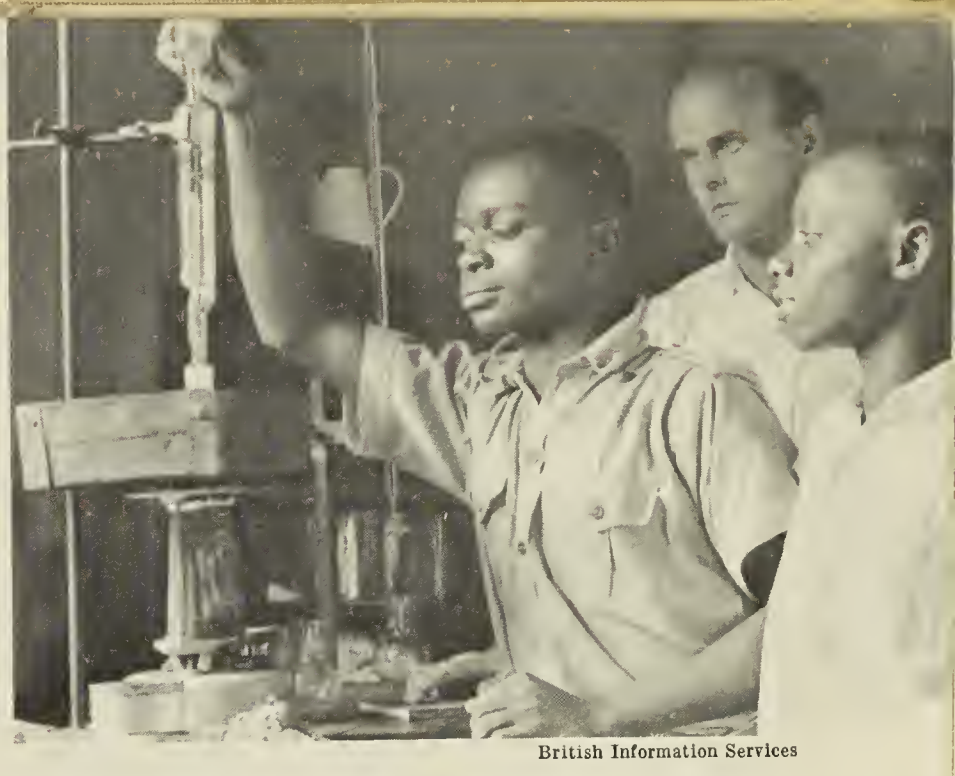
This part of the country is much more civilized than I expected. Ibadan is the largest city in tropical Africa and is bigger than Vancouver. I am writing in the university library.

The city is a mixture of modern buildings and small shacks and shelters, with roofs of rusty sheet iron. Some of the streets are broad and straight, and others are crooked, narrow alleys. Many of the people go barefoot. Some dress just as we do, but others wear many-coloured, long, flowing robes. Umbrellas are used to keep off the bright sun and the heavy rains. The streets are full of bicycles and people, and buses and cars must move very slowly and carefully.

Here, Africans run the police force, teach in the university, take care of sick people in hospitals, and work as engineers in mines, on the railways, and at the airports. It is very different from South Africa.

Africans already run the villages, towns, and cities, and elect members of the legislature and government. In time Nigeria will govern itself entirely. Education is a big problem. We have seen old men learning the alphabet and writing the letters on blackboards with bits of chalk. It shows that they really want to learn.

Your friend,
John



British Information Services

Testing palm oil in a Nigerian mill to make sure the quality is good.

Nigerian farming · While we are in Ibadan a geography teacher explains how farming is carried on in Nigeria. At one time, it seems, people in most tropical countries moved from place to place to grow their food crops, as many still do near the Amazon in Brazil. After a few years in one place, the crops became poorer, and so a piece of forest somewhere else was cleared to start a new garden. This was done because the soil in the tropics is usually not rich. Also, because the people were not skilled farmers, heavy rains washed many of the valuable minerals out of the soil.

Nigerians can no longer move to a new place, because their country is too crowded. Crops must now be grown year after year in the same place. Africans are being taught how to rotate their crops, so that different plants use the soil each year. They also fertilize the land, to give back to the soil some of the minerals used by the plants or washed away by the rain. Nigerians must learn to be good farmers because most of the wealth of their country comes from products of the soil.

Cacao and oil palms are important crops. The oil palm is something like a coconut palm. The fruit, which is about as big as a plum, grows in clusters. Inside the fruit there is a stone with a kernel in it. The Africans gather the fruit and crush the soft part of it to get the oil. Most of the kernels are shipped overseas, but some are processed in Nigeria.

Other agricultural crops that are shipped overseas from Nigeria include cotton, rubber, and bananas. Gum arabic and lumber are obtained from the forests.

Enugu—Coal City · From Ibadan, our plane takes us eastward across the tropical rain forest to Enugu, a station on the railway



British Information Services

Mining tin in Nigeria. Some of the mines still use man power instead of machinery.

running inland from Port Harcourt. This is the centre of coal-mining in Nigeria; it is often called "Coal City." The coal was first mined to provide fuel for the railways. Now some of it is sent to other parts of Nigeria, to make electricity and steam to drive machinery in factories, and some is exported.

A northern Nigerian.

British Information Services



At the coal mine outside the city, the mine manager, a Scotsman, tells us that all skilled work about the mine is now done by Africans. We watch the miners using electric coal-cutting machines, and see electric drills boring holes for blasting. We are shown the modern homes for the miners, the athletic field, a hospital, and a large clubhouse.

We ask the manager what other minerals are found in the country. "There are very important tin mines in the centre of Nigeria," he tells us. "Gold has been mined for a long time, and not long ago geologists discovered radium and uranium."

A Muslim market city · From Enugu we take off on the long cross-country trip to Kano, the largest city in northern Nigeria. Kano is far inland, but it is a very important city. The international airport at which we land is used by planes from distant lands. Kano is also the centre of roads and tracks that crisscross northern Nigeria and the lands to the north. It has been a trading city for more than a thousand years.

The 100,000 people of Kano live in a city quite different from any we have yet seen in Africa. It is surrounded by a high wall. Only Muslims and a very few government officials are allowed to live within the walls.

Kano began as a trading centre, where tropical forest products from the south were exchanged for those from the grasslands and even from the faraway coast of the Mediterranean Sea. Spinning, weaving, and dyeing cotton is an important industry, metal is made into household goods, and the city is the centre for leather-tanning. Beautifully dyed and tooled leatherwork from Kano has been sold for centuries in the Mediterranean lands. It was taken across the desert to Morocco, and came to be called "Morocco leather," even though it originated in Nigeria.

Government of northern Nigeria · This northern part of Nigeria is governed by an emir,

or chief, who has about three million people under his rule. He is given advice by British officials, but most of the governing is left to him and his native councillors. This is called governing by indirect rule, and is the way most British colonies are governed.

Agriculture in northern Nigeria · Here, about 1,500 feet above the sea, different crops are produced from those in the south. Peanuts, cotton, and cereals such as millet are grown, and dried meat and cattle hides are exported. Because there is not much rain, farmers must learn to cultivate the soil carefully to save any rain that falls, to dig wells, and to stop the winds from blowing the dry soil away. For many years the sand of the great Sahara Desert has been moving southward, because of poor farming and the grazing of too many cattle and camels on the dry grasslands.

The edge of the desert · Fifteen hundred miles of dry land separate Kano from the Mediterranean Sea. Across this long distance there are a few camel tracks and one or two roads that can be used by buses and trucks. There are also airfields at oases, where a spring provides water and some palm trees and other vegetation can grow. We shall fly north from Kano across French West Africa and Algeria to the city of Algiers on the Mediterranean coast.

LEARNING MORE ABOUT WEST AFRICA · **1.** On the map on page 262, find each of the colonies in British West Africa. They are Gambia, Sierra Leone, Gold Coast, and Nigeria. In reference books find information about Gambia and how the people there make a living.

2. There are several small colonies in West Africa which we have not studied. Find the Spanish colonies, Ifni and Río Muni, and the Portuguese colonies, Cape Verde Islands, Cabinda, São Tomé, and Principe on the map on page 249. Divide the class into six groups, and have each group prepare a report on one of these colonies.

3. The Niger River is 2,600 miles long. It is the third longest river in Africa. Can you name the two that are longer? On the map on page 249, locate the Niger's 200-mile wide delta, and find Port Harcourt, the large seaport which is thirty miles from the open sea. Follow the river upstream to its source. Does it rise in Nigeria?

YOUR SCRAPBOOK · Have you added to your scrapbook pictures of the African places which we have visited?

MEDITERRANEAN AFRICA

North Africa has very close ties with Europe. We can study it better when we are learning about lands such as Spain, France, Italy, and Greece. In this book, therefore, it is mentioned only briefly.

A letter from Algiers · We are at the end of our journey, in Algiers, on the Mediterranean Sea, about 5,000 miles north of Cape Town. This is our last chance to send letters from Africa. One of the girls in our group writes to a friend in Ottawa.

Dear Joan,

Yesterday, we flew here from Kano, Nigeria. The distance is about 1,800 miles, about as far as from Ottawa to Calgary, but the scenery is nothing like that in Canada. We crossed the Sahara, the biggest desert in the world.

For some time after leaving Kano, we flew over dried-up grassland with a few scattered bushes. Then the grass was gradually replaced by stony ground and bare rock, and finally by sand. For long distances there were rolling sand-hills below us, with no roads, farms, or vegetation of any kind. Although we saw so much sand, we were told that about six-sevenths of the Sahara is not sand but stony or rocky ground. Now and then we saw a small village surrounded

by palm trees. At some villages there were airfields, and a few of them also had gleaming white hotels for travellers who cross the desert by bus.

During the last part of the journey the scenery changed quickly. High mountain ranges and plateaus border the Mediterranean Sea, and because they get rain and some snow in winter, there are forests in a few places, and much of the lowland is used for crops. This northern part of Africa gives a living to millions of people, but very few can live on the drier lands farther south.

From Algiers we shall fly to London and then on to Montreal. Although we have not travelled about in North Africa, I have collected some information about the main countries to put in with this letter.

Your friend,
Barbara

NORTHWEST AFRICA

Close to Europe · Northwest Africa looks toward Europe and turns its back on the Sahara Desert. Most products of the area are sold in southern Europe, and manufactured goods are usually bought there. The climate near the coast is much like that of nearby Spain or southern Italy. Crops, such as olives, grapes, oranges, wheat, and barley, are also the same as those grown in the European lands across the Mediterranean.

Many peoples · The North African peoples are of mixed origin, although most of them are of the Muslim religion. The Berbers, who are related to southern Europeans, have lived in North Africa for thousands of years. Arabs invaded their lands from the east, and, much later, French, Spanish, and Italian settlers moved in from the north. Algeria is a part of France and its people vote in French elections. Tunisia and French Morocco are protectorates of France, and Spanish Morocco is a colony of Spain. A small area at Tangier is not owned by any one country but is governed internationally.

Coast cities · Because the coastal area has enough rainfall and enough level land, the large towns and cities are there, as are the good roads, railways, and cultivated areas. All the larger cities are seaports. Some of them are also naval bases or air bases, which guard ships using the Mediterranean on the way between the Atlantic and the Indian Ocean.

Farming and mining · Many North Africans are very poor, although they are now better off than in times past. Because of better food and medical aid, the population is growing rapidly, and the good land is now overcrowded. As the poorer land on the edge of the desert is cultivated or used for grazing by sheep, goats, and camels, the soil blows away. Today "the deserts are on the march" and sand is slowly blowing in over the better farmlands.

Northwest Africa exports two valuable minerals, iron ore and phosphate fertilizer. It is also one of the few parts of the Mediterranean area where coal is mined.

LIBYA AND EGYPT

Libya · The eastern part of North Africa is divided between two nations, Libya and Egypt. Libya is almost all desert. There are only two small areas of good land, one around Tripoli and the other around Benghazi, and they are separated from one another by 500 miles of desert.

Egypt · Egypt would also be all desert, but for the Nile River which brings water to it from the tropical rain forest and the Ethiopian mountains. The Nile River is like a 700-mile irrigation ditch running through the middle of the Egyptian desert. Most of the twenty million people of Egypt live near its banks.



Wide World Photo

Algiers, as seen from the harbour.

Cairo, located where the Nile begins to spread out into a delta before entering the Mediterranean Sea, is the largest city in Egypt. It has about a million people, and is the centre of government and manufacturing in the country. Aeroplanes from many parts of the world come to the big Cairo airport, for it is an important "cross-roads" of world trade and travel.

Alexandria, another large Egyptian city, is an important seaport. Many ships using the Suez Canal put into its harbour. On the map on page 249, find the Suez Canal, which cuts through part of Egypt, linking the Mediterranean and Red seas, and notice how it shortens the trade route to the East.

The wealth of Egypt comes mainly from exporting high-quality cotton, grown on the irrigated lands of the Nile Valley. Some minerals are also exported.

NORTH AFRICA TODAY

All North African lands suffer from shortage of water. Those at the western end get winter rain, while Egypt, at the eastern end, depends on the Nile. The population is everywhere growing rapidly, and as there is not enough good land and water for everyone to make a good living, many of the people are very poor.

The large cities have modern buildings, factories, and businesses. Part of their wealth comes from shipping and other trade moving along the Mediterranean Sea, which is one of the most important trade routes in the world.

DESERTS · Make a list of deserts in southern lands, about which you have read. Notice the latitude of the middle of each desert. Have they anything in common? Which of them are on the west coast of continents?

NORTH AFRICAN COLONIES · Which parts of North Africa are not colonies? In what way is Algeria different from all the rest? Can you discover what postage stamps are used in the International Zone of Tangier?

DESERTS ON THE MARCH · Why is the desert slowly moving toward some of the good farmlands of North Africa? What can be done to stop it?

NILE WATER · Egypt has been called the "Gift of the Nile." What does this mean? List the African countries which are interested in using water from the Nile. How do they work together to control it?

Film List

The use of films is now an accepted teaching technique. To obtain the films mentioned in this list, teachers should apply to the Audio-Visual Aids Branch of their provincial Departments of Education. In provinces which encourage schools to build up their own filmstrip libraries, teachers should make their own purchases. In other provinces, filmstrips are distributed by the Audio-Visual Aids Branch.

The Caribbean

Asphalt Lake (Trinidad) (Gaumont-British. B. and W. 12 mins.). The uses of asphalt; where the lake, refinery, and conveyor are located; methods used in procuring asphalt. An excellent film on economic geography, with its primary emphasis on human activities.

Caribbean (E.B.F.* B. and W. 25 mins.). Shows the people, customs, export products, social problems, and scenery of the British West Indies, British Guiana, and British Honduras.

Grapefruit (Gaumont-British. B. and W. 8 mins.). The growth of seedlings, spraying, the taking and planting of cuttings, are seen in detail, followed by the harvesting, examination, washing, grading, and packing of fruit ready for transport to the markets of Canada and the British Isles. Photographed in the West Indies.

Jamaican Harvest (Gaumont-British. B. and W. 12 mins.). A study of the cultivation of the banana crop in Jamaica.

Mexico

Conquest of Mexico and Peru—filmstrip (The University Museum, Philadelphia. B. and W. 54 frames).

Cortez Conquers Mexico—filmstrip (Popular Science. B. and W. 45 frames).

Fiesta Day (Mexico)—filmstrip (Young America Films, Inc. Colour. 42 frames).

Golden Age of Spanish Discovery—filmstrip (Popular Science. B. and W. 52 frames).

Land of Mexico (E.B.F. B. and W. 11 mins.). Describes natural resources, industries, and other activities of Mexico in both urban and rural areas. Recordings of Mexican music.

Mexican Children (E.B.F. B. and W. 12 mins.). This film tells a simple, delightful story of two Mexican children, depicting their experiences at home, at school, and at play.

Mexican Children—filmstrip (E.B.F. B. and W. 70 frames).

Mexico and Its People—filmstrip (Society for Visual Education. B. and W. 40 frames).

Mexico City—filmstrip (Society for Visual Education. B. and W. 34 frames).

Natives of Mexico and Central America—filmstrip (The University Museum, Philadelphia. B. and W. 68 frames).

Central America

Cross Section of Central America (Guatemala) (United World. B. and W. 20 mins.). Stressing the relationship between vegetation and altitude, the film shows the gathering of bananas, chicle, and mahogany, the City of Guatemala, the raising of corn, making silver jewelry, and the markets.

José Harvests Bananas (Guatemala)—filmstrip (Young America Films, Inc. Colour. 38 frames).

The World We Live On

Day and Night (Gaumont-British. B. and W. 12 mins.). By means of a globe rotating in space, the film explains why there is day and night and why the sun appears to rise in the east and set in the west. Causes of the variation in the length of day and night are demonstrated.

Latitude and Longitude (Gaumont-British. B. and W. 12 mins.). The subject is introduced by showing how a ship needs some method of stating its position without referring to landmarks.

*E.B.F. stands for Encyclopedia Britannica Films.

Latitude and Longitude—filmstrip (Gaumont British Instructional Ltd. Colour. 21 frames).

South America

Ancient Civilization of Peru—filmstrip (The University Museum, Philadelphia. B. and W. 65 frames).

Argentina—filmstrip (Stillfilm. B. and W. 72 frames).

Balboa and Pizarro—filmstrip (Curriculum Films. Colour. 25 frames).

Bolivia—filmstrip (Stillfilm. B. and W. 48 frames).

Brazil (E.B.F. B. and W. 12 mins.). Recent developments in the modern cities of Rio de Janeiro, Santos, and São Paulo are illustrated. The natural resources, occupations of the people, and social customs are revealed.

Brazil—filmstrip (Stillfilm. B. and W. 78 frames).

Chile—filmstrip (Stillfilm. B. and W. 60 frames).

Chile (People of the Country Estates) (E.B.F. B. and W. 12 mins.). Portrays geographic characteristics and natural resources of Chile and calls particular attention to life in the the Central Valley.

Coffee Industry—filmstrip (Society for Visual Education. B. and W. 29 frames).

Colombia—filmstrip (Stillfilm. B. and W. 60 frames).

Cortez, Hernando—filmstrip (Young America Films, Inc. Colour. 38 frames).

Ecuador—filmstrip (Stillfilm. B. and W. 54 frames).

Horsemen of the Pampas (United World. B. and W. 12 mins.). Opening with scenes of Buenos Aires, the film shows the importance of the Pampa to that city, and life on a typical estancia.

Magellan—filmstrip (Young America Films, Inc. Colour. 42 frames).

Market Day at Cusco (Peru)—filmstrip (Young America Films, Inc. Colour. 38 frames).

Peru—filmstrip (Stillfilm. B. and W. 68 frames).

Source of the Amazon (E.B.F. Colour). The film traces the Amazon River from its source in the Andes to Iquitos.

A Story of Coffee (E.B.F. B. and W. 12 mins.).

Tropical Lowland (Brazil) (United World. B. and W. 20 mins.). A description of the life of a native family living in the Lower Amazon.

Uruguay—filmstrip (Stillfilm. B. and W. 36 frames).

Vacation on the Pampa—filmstrip (Young America Films, Inc. Colour. 40 frames).

Venezuela—filmstrip (Stillfilm B. and W. 62 frames).

Antarctica

Antarctic Whale Hunt (Gaumont-British. B. and W. 18 mins.). A detailed story of a whaling expedition to the Antarctic from an English port, including the fitting of the ship, the ocean trip, the daily hunts, and processing of the catch.

Islands of the Pacific

Captain Cook—filmstrip (Common Ground. B. and W. 42 frames).

Columbus—filmstrip (Young America Films, Inc. Colour. 36 frames).

Hawaii (E.B.F. B. and W. 10 mins.). Surveys the geography of the islands and the activities of the people.

International Date Line—filmstrip (Teaching Films Inc. B. and W. 37 frames).

Pacific (E.B.F. Colour. 10 mins.). Portrays and explains, by means of technicolor animated drawings, the role played by the Pacific Ocean in international affairs.

Pacific Island (International Film Bureau. B. and W.) A description of life on a typical coral island in the Pacific.

Pacific Ocean (International Film Bureau. Colour. 24 mins.). Using a series of animated coloured maps, this film develops the extensive story of exploration, colonization, trade, empire building, and international rivalry in the Pacific Ocean.

South Pacific Island Children (E.B.F. Colour. 11 mins.). Photographed in the Fiji Islands, the film shows the members of a native family at a variety of daily activities.

Australia

Australia (E.B.F. B. and W. 12 mins.). This film surveys the geographic character of the continent, shows the inter-relations of topography, climate, people, industry, and agriculture, and describes the principal exports and imports.

Australia—Fight against Drought—filmstrip (Common Ground. B. and W. 38 frames).

Australia—Industrial and Agricultural—filmstrip (Society for Visual Education. B. and W. 68 frames).

Australia—Its Natives and Their Customs—filmstrip (The University Museum, Philadelphia. B. and W. 66 frames).

Australia—Murray-Darling Basin—filmstrip (Common Ground. B. and W. 36 frames).

Australia—Problem of the Tropics—filmstrip (Common Ground. B. and W. 44 frames).

Australia—Scenic, Recreational Wild Life—filmstrip (Society for Visual Education. B. and W. 72 frames).

Christmas under the Sun (National Film Board. B. and W. 16 mins.). December and Christmas Day in Australia. Shows the suburban areas and life of the average Australian family. Shows women shopping for meat and fruit. Santa Claus in full regalia in one of the stores and children unwrapping gifts on Christmas morning.

Live Teddy Bears (E.B.F. B. and W. 11 mins.). Opening with a scene in the Australian park, where a young boy and girl come to see the koalas, the film then shows the wild bush country of Australia where the koalas are found in their native habitat.

New Zealand

New Zealand (United Kingdom Information Office. B. and W. 12 mins.). This film describes the Maoris and the whites, and the agricultural and industrial life of the country.

New Zealand, Part I—filmstrip (Common Ground. B. and W. 40 frames).

New Zealand, Part II—filmstrip (Common Ground. B. and W. 40 frames).

Africa

Central and Southern Africa—filmstrip (Society for Visual Education. B. and W. 48 frames).

David Livingstone (Rank. B. and W. 24 mins.).

Giant People (E.B.F. B. and W. 12 mins.). Shows the daily life of the Watussi tribe of Uganda.

Life in Hot Wet Lands (Coronet. B. and W. 10 mins.). Bombo, a small native boy, is shown fishing, travelling through a jungle path, visiting a trader, living in his parents' thatched hut.

Life in the Sahara (E.B.F. Colour. 14 mins.).

Mediterranean Africa (E.B.F. Colour. 12 mins.). "A geographical-historical survey. Points up many-cultured aspects; its role as a European breadbasket, its crossroads of culture and invasion."

Northern Africa—filmstrip (Society for Visual Education. B. and W. 48 frames).

Peoples of Central and Southern Africa—filmstrip (Society for Visual Education. B. and W. 62 frames).

Peoples of North Africa—filmstrip (The University Museum, Philadelphia. B. and W. 50 frames).

The Races of the Union of South Africa—filmstrip (Audio Visual Associates. B. and W. 64 frames).

South Africa (Riches of the Veldt) (Coronet. B. and W. 24 mins.). Portrays the industries of the Union of South Africa. The chief sequences depict a native village, the city of Johannesburg, the climatic areas and types of agriculture, scenes in the Rand gold mines and in the diamond mines at Kimberley.

South Africa—Part I—filmstrip (Common Ground. B. and W. 37 frames).

South Africa—Part II—filmstrip (Common Ground. B. and W. 37 frames).

Tea from Nyasaland (Young America Films, Inc. B. and W. 12 mins.). A map indicates the chief tea-producing areas of the world. The operation of an African tea plantation is shown.

Tobacco Supply of the World (Gaumont-British. B. and W. 12 mins.).

Union of South Africa—The Land and the People—filmstrip (Audio Visual Associates. B. and W. 64 frames).

Books to Read

The West Indies

Children of the Sea, by Wilfrid S. Bronson. (McLeod)
Islands on Guard, by Helen Follett. (Saunders)
Uncle Bouqui of Haiti, by Harold Courlander. (Collins)

Mexico

The Boy Who Could Do Anything and Other Mexican Folk Tales, by Anita Brenner. (Saunders)
In Mexico They Say, by Patricia Ross. (McClelland & Stewart)
Mexico, by Carlos Castillo. (Nelson)
Mexico and the Inca Lands, by Rafaello Busoni. (Saunders)

Central America

Quetzal Quest, by V. W. von Hagen and Quail Hawkins. (McLeod)

South America

Mario and the Chuna, by Esther Greenacre Hall. (Random House)
New Found World, by Katherine B. Shippen. (Macmillan)
Riches of South America, by V. Wolfgang von Hagen. (Copp Clark)
Secret of the Andes, by Ann Nolan Clark. (Macmillan)
South American Roundabout, by Agnes Rothery. (Dodd, Mead)
Wings around South America, by Alice Dalgliesh. (Saunders)

Pacific Islands

Kon-Tiki, by Thor Heyerdahl. (Allen)
Picture Map Geography of the Pacific Islands, by Vernon Quinn. (Longmans, Green)

Australia

Australia, by Rafaello Busoni. (Saunders)
Australia: the Island Continent, by Grace Allen Hogarth. (Nelson)
The Mysterious Continent, by Charlotte Lohse and Judith Seaton. (McClelland & Stewart)
Walkabout Down Under, by Kay Stevens Foote. (Saunders)

New Zealand

Windy Island, by T. A. Harper and W. M. Harper. (Doubleday)

Africa

Bushveld Adventure, by F. King. (Ginn)
Children of North Africa, by Louise A. Stinetorf. (Longmans Green)
Diamonds in Springbok Valley, by F. King. (Ginn)
Lost in the Jungle, by Paul du Chaillu. (Musson)
Picture Map Geography of Africa, by Vernon Quinn. (Longmans Green)
Saranga the Pygmy, by Attilio Gatti. (Saunders)
Stanley's Africa, by Rafaello Busoni. (Macmillan)

Antarctica

In Little America with Byrd, by J. and O. D. Hill. (Ginn)

General

Sally Ann, a Tall Ship, by K. M. Gadd. (Ginn)
Your Country and Mine, by E. W. Tiegs, F. Adams, and G. S. Brown. (Ginn)
Your World and Mine, by E. W. Tiegs, F. Adams, and G. S. Dawson. (Ginn)



AREA AND POPULATION OF THE

NORTH AMERICA

	Area in Square Miles	Population
Alaska	586,400	129,000
Bahamas	4,404	81,000
Bermuda	22	38,000
British Honduras	8,867	71,000
Canada	3,843,144	14,430,000
Costa Rica	19,238	838,000
Cuba	44,217	5,524,000
Dominican Republic	19,129	2,167,000
El Salvador	13,176	1,952,000
Greenland	736,518	23,000
Guatemala	42,044	2,887,000
Haiti	10,700	3,112,000
Honduras	59,160	1,505,000
Jamaica	4,411	1,444,000
Mexico	758,550	26,922,000
Nicaragua	57,144	1,088,000
Panama	28,575	817,000
Trinidad and Tobago	1,980	656,000
United States	3,022,387	157,500,000

SOUTH AMERICA

	Area in Square Miles	Population
Argentina	1,072,745	17,861,000
Bolivia	416,040	3,054,000
Brazil	3,286,169	54,660,000
British Guiana	89,480	437,000
Chile	286,396	5,936,000
Colombia	439,825	11,266,000
Ecuador	104,510	3,203,000
French Guiana	34,740	26,000
Paraguay	150,516	1,425,000
Peru	482,257	8,714,000
Surinam (Dutch Guiana)	54,291	223,000
Uruguay	72,172	2,365,000
Venezuela	352,141	5,071,000

EUROPE

	Area in Square Miles	Population
Albania	10,629	1,200,000
Austria	32,341	6,934,000
Belgium	11,775	8,736,000
Bulgaria	42,725	7,160,000
Czechoslovakia	49,330	12,340,000
Denmark	16,575	4,304,000
England and Wales	58,340	44,008,000
Finland	130,116	4,103,000
France	212,659	42,500,000
Germany, East	41,841	17,300,000
Germany, West	95,800	48,117,000
Greece	51,300	7,600,000
Hungary	35,875	9,390,000
Iceland	39,709	147,000
Ireland, Rep. of	26,601	2,959,000
Italy	119,764	46,965,000
Luxembourg	999	300,000
Netherlands	13,203	10,409,000
Northern Ireland	5,237	1,373,000
Norway	124,556	3,336,000
Poland	120,000	24,977,000
Portugal	34,254	8,606,000
Rumania	91,624	16,200,000
Scotland	30,405	5,114,000
Soviet Union[1]	8,548,478	193,000,000
Spain	190,042	28,306,000
Sweden	173,403	7,139,000
Switzerland	15,944	4,836,000
United Kingdom	93,982	50,495,000
Yugoslavia	96,200	16,340,000

[1]Europe and Asia.



PRINCIPAL COUNTRIES OF THE WORLD

ASIA

	Area in Square Miles	Population
Afghanistan	250,000	12,000,000
Burma	261,610	18,859,000
Ceylon	25,332	7,842,000
Chinese Republic	3,750,106	463,500,000
India	1,221,000	358,000,000
Indochina	286,000	30,000,000
Indonesia	575,893	76,500,000
Iran	628,000	19,140,000
Iraq	116,600	5,100,000
Israel	5,678	1,619,000
Japan	147,702	85,800,000
Jordan	39,460	1,372,000
Korea	85,249	29,291,000
Lebanon	4,000	1,304,000
Malaya	50,966	5,421,000
Outer Mongolia	622,744	885,000
Pakistan	361,000	75,842,000
Philippine Islands	115,600	20,631,000
Saudi Arabia	700,000	6,000,000
Soviet Union[1]	8,548,478	193,000,000
Syria	74,000	3,329,000
Thailand	200,148	19,192,000
Turkey[1]	296,903	20,935,000
Yemen	75,000	4,500,000

AFRICA

	Area in Square Miles	Population
Algeria	847,500	8,930,000
Angola	481,351	4,149,000
Basutoland	11,716	578,000
Bechuanaland	275,000	290,000
Belgian Congo	902,082	11,463,000
British Somaliland	68,000	500,000
Egypt	386,198	20,729,000
Eritrea	15,754	1,104,000
Ethiopia	350,000	15,000,000
French Equatorial Africa	959,256	4,484,000
French Somaliland	9,071	55,000
French West Africa	1,815,768	17,208,000
Gambia	4,003	279,000
Gold Coast	91,843	3,929,000
Kenya	224,960	5,680,000
Liberia	43,000	1,648,000
Libya	679,358	1,124,000
Madagascar	241,094	4,333,000
Morocco French	165,800	8,500,000
Morocco Spanish	17,631	1,071,000
Mozambique	297,731	5,781,000
Nigeria	372,674	25,000,000
Northern Rhodesia	290,320	1,947,000
Nyasaland	47,949	2,400,000
Portuguese Guinea	13,948	520,000
Sierra Leone	27,669	2,000,000
Somalia	194,000	1,247,000
Southern Rhodesia	150,333	2,158,000
Southwest Africa	317,725	416,000
Sudan	967,500	8,740,000
Tanganyika	360,000	7,827,000
Tunisia	48,300	3,500,000
Uganda	93,981	5,187,000
Union of South Africa	472,494	12,912,000
Zanzibar and Pemba	4,003	273,000

[1]Europe and Asia.

AUSTRALASIA

	Area in Square Miles	Population
Australia	2,974,581	8,649,000
British Borneo	78,648	957,000
New Guinea	344,232	2,458,000
New Zealand	164,148	1,995,000

POPULATION OF IMPORTANT CITIES IN CANADA AND SOUTHERN LANDS

NORTH AMERICA

Canada

Calgary	129,060
Charlottetown	15,887
Edmonton	159,631
Halifax	85,589
Hamilton	208,321
Montreal	1,021,520
Ottawa	202,045
Quebec	164,016
Regina	71,319
Saint John	50,779
St. John's	52,873
Toronto	675,754
Vancouver	344,833
Victoria	51,331
Windsor	120,049
Winnipeg	235,710

Mexico

Guadalajara	337,000
Mexico City	2,113,000
Monterrey	340,000
Puebla	230,000

Central America

Guatemala	294,000
Managua	107,000
Panama	146,000
San José	281,000
San Salvador	160,000
Tegucigalpa	93,000

West Indies

Ciudad Trujillo	182,000
Havana	800,000
Kingston	109,000
Port-au-Prince	424,000
Port of Spain	106,000
San Juan	225,000
Santiago de Cuba	152,000

SOUTH AMERICA

Asunción	130,000
Avellaneda	280,000
Belo Horizonte	360,000
Bogotá	643,000
Buenos Aires	3,000,000
Caracas	488,000
Cordobá	352,000
Guayaquil	235,000
La Paz	321,000
La Plata	272,000
Lima	835,000
Maracaibo	232,000
Montevideo	850,000
Porto Alegre	401,000
Quito	200,000
Recife	534,000
Rio de Janeiro	2,413,000
Rosario	761,000
Santiago	1,162,000
São Paulo	2,228,000
São Salvador	424,000
Tucumán	172,000
Valparaiso	198,000

AUSTRALIA AND NEW ZEALAND

Australia

Adelaide	430,000
Brisbane	440,000
Canberra	25,000
Hobart	87,000
Melbourne	1,326,000
Newcastle	135,000
Perth	279,000
Sydney	1,585,000

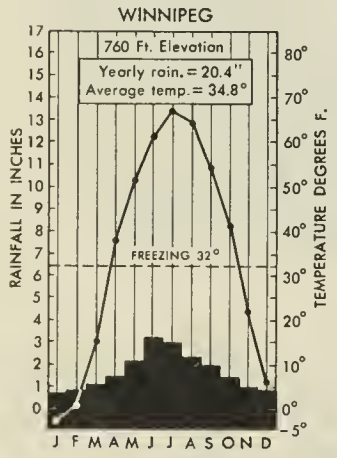
New Zealand

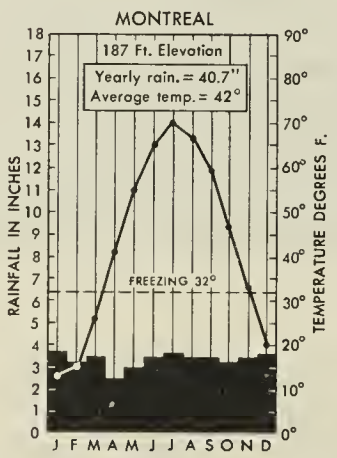
Auckland	329,000
Christchurch	174,000
Dunedin	95,000
Wellington	133,000

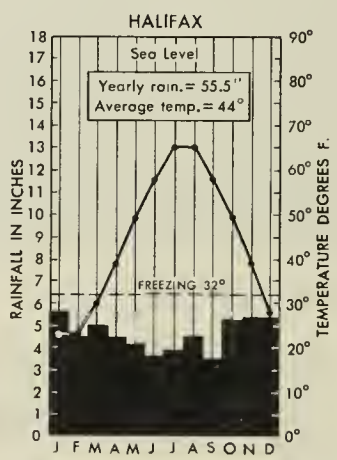
AFRICA

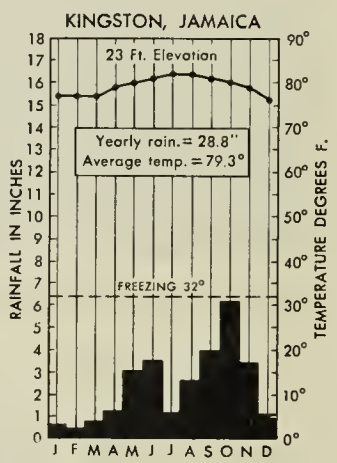
Accra	136,000
Addis Ababa	300,000
Alexandria	925,000
Algiers	315,000
Benghasi	59,000
Brazzaville	84,000
Cairo	2,101,000
Cape Town	471,000
Casablanca	570,000
Dakar	185,000
Dar-es-Salaam	70,000
Durban	372,000
Elisabethville	103,000
Fez	202,000
Freetown	65,000
Ibadan	336,000
Johannesburg	765,000
Kampala	40,000
Khartoum	75,000
Lagos	230,000
Leopoldville	209,000
Lourenço Marques	48,000
Loanda	40,000
Marrakech	239,000
Mombasa	92,000
Nairobi	119,000
Omdurman	125,000
Oran	257,000
Port Elizabeth	148,000
Pretoria	245,000
Rabat	162,000
Salisbury	41,000
Tananarive	174,000
Tripoli	145,000
Tunis	365,000
Zanzibar	45,000

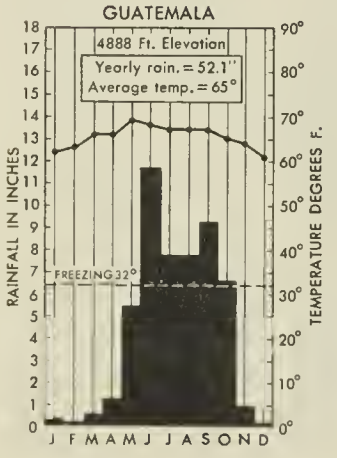
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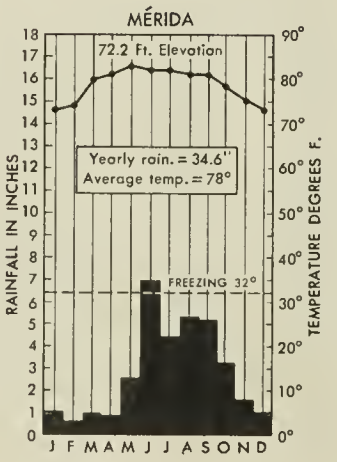


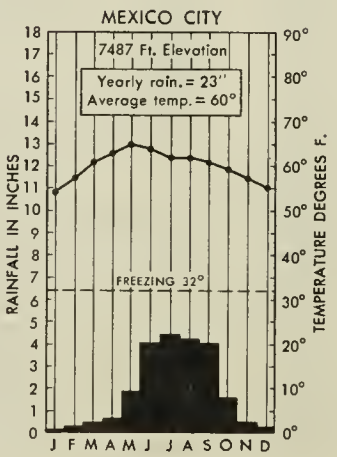


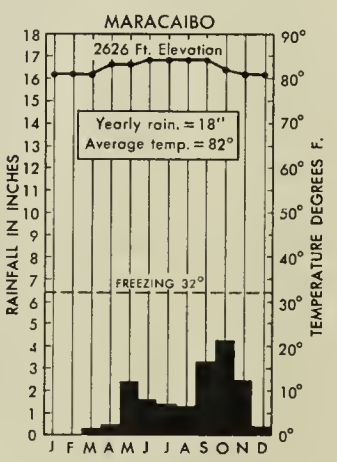


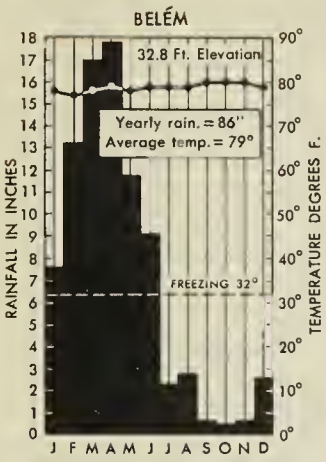


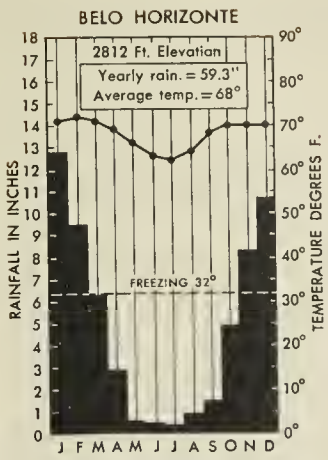


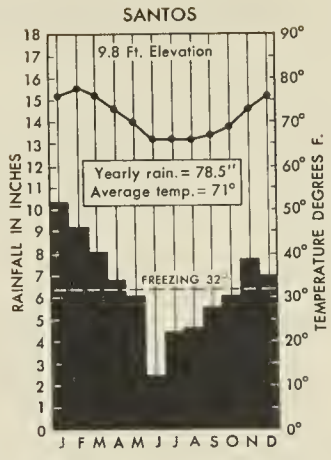


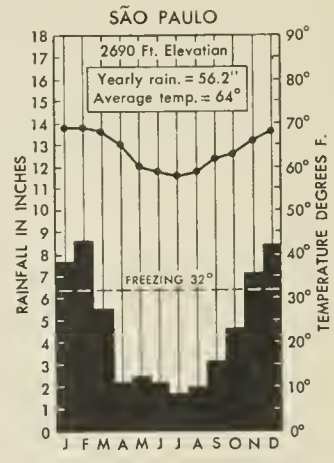


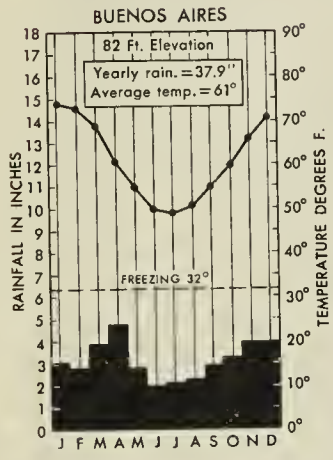


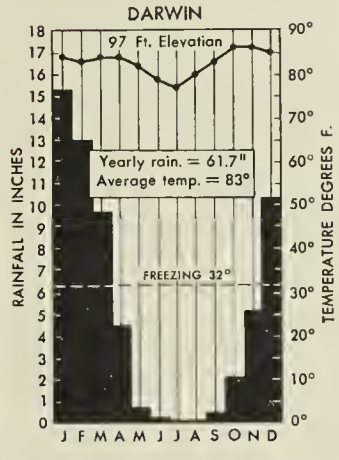

BELÉM
32.8 Ft. Elevation
Yearly rain. = 86"
Average temp. = 79°
FREEZING 32°
RAINFALL IN INCHES
TEMPERATURE DEGREES F.
J F M A M J J A S O N D

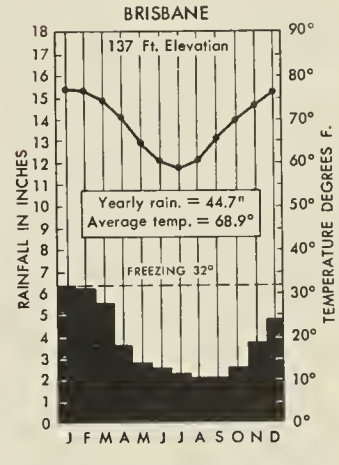

BELO HORIZONTE
2812 Ft. Elevation
Yearly rain. = 59.3"
Average temp. = 68°
FREEZING 32°
RAINFALL IN INCHES
TEMPERATURE DEGREES F.
J F M A M J J A S O N D

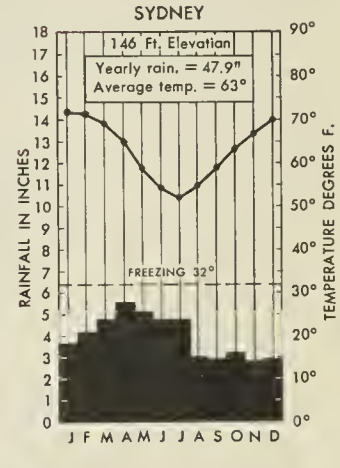

SANTOS
9.8 Ft. Elevation
Yearly rain. = 78.5"
Average temp. = 71°
FREEZING 32°
RAINFALL IN INCHES
TEMPERATURE DEGREES F.
J F M A M J J A S O N D

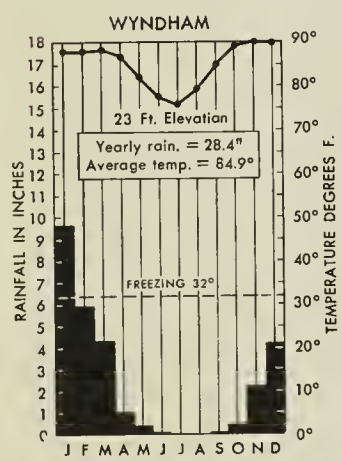

SÃO PAULO
2690 Ft. Elevation
Yearly rain. = 56.2"
Average temp. = 64°
FREEZING 32°
RAINFALL IN INCHES
TEMPERATURE DEGREES F.
J F M A M J J A S O N D

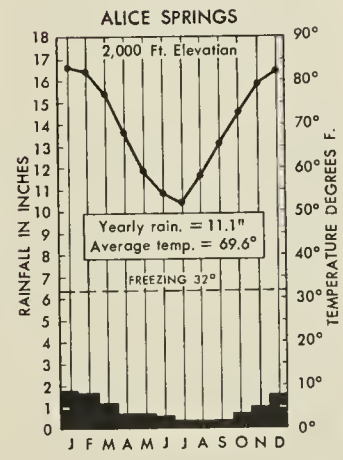

BUENOS AIRES
82 Ft. Elevation
Yearly rain. = 37.9"
Average temp. = 61°
FREEZING 32°
RAINFALL IN INCHES
TEMPERATURE DEGREES F.
J F M A M J J A S O N D

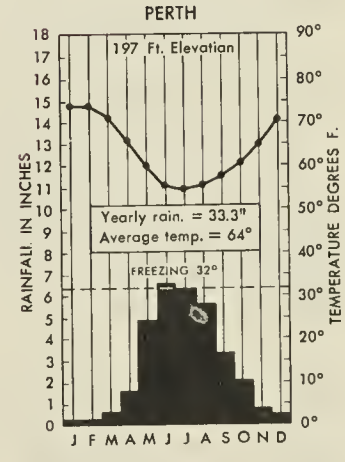

DARWIN
97 Ft. Elevation
Yearly rain. = 61.7"
Average temp. = 83°
FREEZING 32°
RAINFALL IN INCHES
TEMPERATURE DEGREES F.
J F M A M J J A S O N D

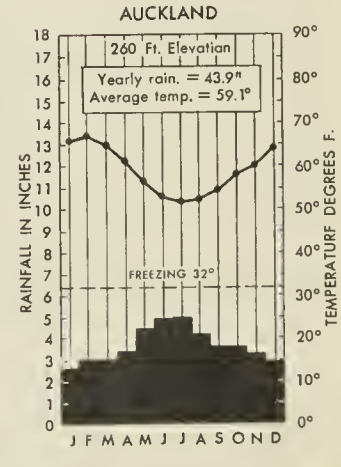

BRISBANE
137 Ft. Elevation
Yearly rain. = 44.7"
Average temp. = 68.9°
FREEZING 32°
RAINFALL IN INCHES
TEMPERATURE DEGREES F.
J F M A M J J A S O N D

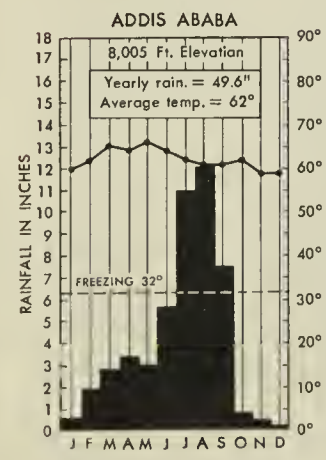

SYDNEY
146 Ft. Elevation
Yearly rain. = 47.9"
Average temp. = 63°
FREEZING 32°
RAINFALL IN INCHES
TEMPERATURE DEGREES F.
J F M A M J J A S O N D

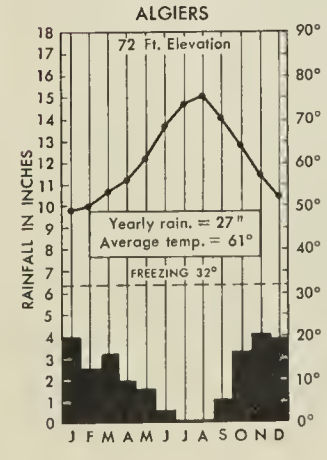

WYNDHAM
23 Ft. Elevation
Yearly rain. = 28.4"
Average temp. = 84.9°
FREEZING 32°
RAINFALL IN INCHES
TEMPERATURE DEGREES F.
J F M A M J J A S O N D

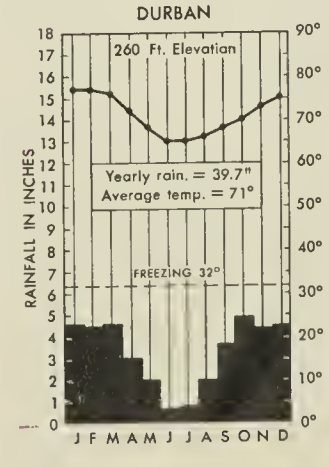

ALICE SPRINGS
2,000 Ft. Elevation
Yearly rain. = 11.1"
Average temp. = 69.6°
FREEZING 32°
RAINFALL IN INCHES
TEMPERATURE DEGREES F.
J F M A M J J A S O N D

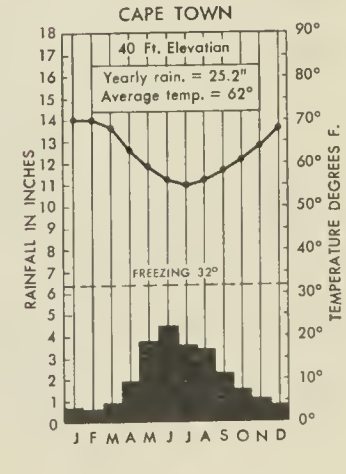

PERTH
197 Ft. Elevation
Yearly rain. = 33.3"
Average temp. = 64°
FREEZING 32°
RAINFALL IN INCHES
TEMPERATURE DEGREES F.
J F M A M J J A S O N D


AUCKLAND
260 Ft. Elevation
Yearly rain. = 43.9"
Average temp. = 59.1°
FREEZING 32°
RAINFALL IN INCHES
TEMPERATURF DEGREES F.
J F M A M J J A S O N D


ADDIS ABABA
8,005 Ft. Elevation
Yearly rain. = 49.6"
Average temp. = 62°
FREEZING 32°
RAINFALL IN INCHES
TEMPERATURE DEGREES F.
J F M A M J J A S O N D


ALGIERS
72 Ft. Elevation
Yearly rain. = 27"
Average temp. = 61°
FREEZING 32°
RAINFALL IN INCHES
TEMPERATURE DEGREES F.
J F M A M J J A S O N D


DURBAN
260 Ft. Elevation
Yearly rain. = 39.7"
Average temp. = 71°
FREEZING 32°
RAINFALL IN INCHES
TEMPERATURE DEGREES F.
J F M A M J J A S O N D


CAPE TOWN
40 Ft. Elevation
Yearly rain. = 25.2"
Average temp. = 62°
FREEZING 32°
RAINFALL IN INCHES
TEMPERATURE DEGREES F.
J F M A M J J A S O N D

Index and Pronouncing Word List

KEY. ă as in can; ā as in cane; a as in father; ĕ as in bet; ē as in be; ĭ as in hid; ī as in hide; ŏ as in not; ō as in note; o as in horse; ŭ as in us; ū as in use; u as in burn; o͝o as in foot; o͞o as in moon; th as in thin; t͟h as in then.

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